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ABNORMALITIES OF GROWTH AND DEVELOPMENT

THE CLINICAL AND PATHOLOGICAL ASPECTS*

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GROWTH AND DEVELOPMENT IN THE NORMAL

The curve of growth in normal children is far from uniform, and a wide range of individual variation occurs. Many attempts have been made to formulate average standards, but such curves in relation to individuals must not be interpreted too strictly. The growth rate in a child at any particular instant is the resultant of a number of different factors. The influences of heredity, sex, and environment must be taken into consideration, to mention only a few. Nevertheless the construction of average growth curves has served a useful purpose and has shown that in the normal there are certain rhythms to be found. The study of an average growth curve shows faster and slower periods, and these alternate in a quite consistent way. This would be generally accepted, and the chief difference of opinion is as to the number of such waves which occur. Some authorities refer only to two, but it is usual to consider three. Robertson (1923) writes of three growth cycles, each composed of a period of gradual acceleration, peak, and retardation. The first is to be observed in the first year of post-natal life, the second with its peak at the sixth or seventh year, and the third the adolescent spurt. Stratz (1922) and Harris (1933) also speak of three "springing-up" periods, each followed by a "filling-out" period, skeletal growth preceding muscular and visceral growth in each case: the chronological timing of the cycles in their curve corresponds to that of Robertson's. Rapid growth during the first year is followed by a slower and steadier period, until the second peak between 5 and 7, which corresponds to the second dentition. Then the child becomes thinner and the limbs lengthen out in comparison with the trunk. Between 7 and 11 or 12, according to sex, the second period of slow growth occurs and is followed by the third peak of puberty. The startling changes associated with this stage of development then give place to the third and last filling-out period, as puberty gives place to adolescence. Few clinicians would disagree with this conception that the three main springing-up periods—of babyhood, of the second dentition, and of puberty—are characteristic of the average child or with the view that it is particularly at these periods that clinical disturbances of growth are so liable to arise. In accepting the main outlines of this conception, however, it must be recognized that the general aspect of the growth curve may be considerably modified by oscillations due to abnormalities of diet, environment, or disease.

That heredity exerts a profound influence on the growth of individuals is a matter of common observation, whilst all who deal with children are conscious of the variations sex induces too. A study of average growth curves brings out this point quite clearly. The fast-growing period in girls starts sooner, finishes earlier, and is less intensive than in boys. Girls in fact grow more steadily until puberty, when growth is more likely to slow down. Boys, on the other hand, often grow rapidly throughout their teens, a fact to which, no doubt, can be attributed the greater average stature of man.

Differential Growth

The occurrence of different rates of growth in the various parts of the skeleton must be briefly considered, for this accounts for the changing skeletal proportions found as growth proceeds. One of the characteristics of the infantile skeleton is a shortness of the limbs in comparison with the trunk. If in the normal child measurements are made from symphysis to vertex and symphysis to soles before the 6th or 7th year it will be found that the lower measurement is less than the upper. At about the time of the second dentition, the second growing-up period, the limbs, as has already been mentioned, begin to lengthen in relation to the trunk. In fact at this stage the infantile skeletal proportions merge into the adult type and, from then onwards until puberty, growth in the limbs is in excess of that in the trunk, with the result that the lower measurement after the age of about 7 or 8 exceeds the upper. The transformation can be accounted for in the following way.

The activity and rate of the growth cartilages, as Harris (1933a) has pointed out, vary considerably in different sites. Each cartilage has its norm. Activity can be measured by the number of cartilage cells in the columns. The most active growth cartilages are those around the knee, and here in the distal cartilage of the femur and in the proximal cartilage of the tibia the number of cells is maximal. Counts of fourteen to twelve cells are common. The rate of proliferation and growth at the upper and lower surfaces of the vertebrae, on the other hand, is very much slower and, in fact, minimal. The number of cells in the cartilage columns at these sites is usually less than five. In point of fact, then, the rate of proliferation and growth at the upper and lower surfaces of the vertebrae is only from one-third to one-quarter of that in the region of the knee. Further, growth in the tibia is faster than in the femur, for the combined activity of the two-growth cartilages in the tibia exceeds that of the cartilages of the femur. Histological evidence thus

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confirms the clinical view that, during the active growth period, activity in the limb bones is considerably in excess of that in the vertebral column and greater below than above the knee. This accounts for the observed fact that in normal children the bodily proportions change during this period from those of the infantile to the adult type.

The Growth Cartilages as the Site of Longitudinal Growth

In considering the development of the bony skeleton in its relation to longitudinal growth our chief interest lies in the growth cartilages of the long bones and in those of the vertebral column. It is now generally accepted that all growth in length takes place at the growth cartilages rather than interstitially. New bone is added to the ends of the diaphyses of the long bones and to the upper and lower surfaces of the vertebrae by successive additions at the growth cartilages. Hunter's (1837) classical experiment with lead shots in the tibia of a growing pig disproved the theory of interstitial growth, for when the bone had increased in length by the growth of the animal the two shots were found to be still the same distance apart. Harris has adduced further evidence to disprove the interstitial theory by following radiologically the progress in a growing child's long bones of individual lines of arrested growth. Transverse striations, individually identified, remain parallel and equidistant as they travel up the shaft.

Structure and Changes in Growth Cartilages During Growth

A brief consideration of the changes occurring in the growth cartilages during normal growth is essential to an understanding of the pathological variations found in the abnormal. The whole subject has recently been fully reviewed by Harris (1933b), to whom we are indebted for many original observations. Cartilage is essentially a vegetative tissue in which the cells are arranged in columns. They proliferate in a relatively avascular matrix. Their nutrition depends largely on tissue-juice diffusion, for the vascular arrangements in the epiphysis and metaphysis are only relatively effective. The vessels, moreover, of the epiphysis, from the vascular circle around the joint, and those of the metaphysis, from the main vessels of the shaft, have no free communication. Proliferation of cartilage cells occurs by fission. In the actively proliferating cells mitosis has been demonstrated by Harris (1933c) by special staining methods. The arrangement of the cells undergoing mitosis is in the form of a ring at the head of the bone, and from this ring, traced centripetally to the epiphysis and centrifugally to the diaphysis, three zones of gradually maturing cells can be found. In the zone next the ring the young cells are arranged in columns or palisades, in the middle zone enlarged and degenerate cells with calcified matrix occur, and in the zones furthest from the ring, those next to the diaphysis, and in the centre of the epiphysis, osteogenesis is proceeding. Conditions of nutrition become gradually more and more difficult for the cells removed from the ring, and this is heralded by calcification of the matrix. Subsequently the calcified matrix is removed by an irruption of blood vessels carrying osteogenic cells, the function of which is to deposit bone. Osteogenesis can be compared to an aseptic inflammatory process whereby the senescent cartilage as a virtual foreign body is replaced by highly vascular bone. We thus arrive at the arrangement of an ossification centre in the epiphysis and an area of ossifying cells in the metaphysis, representing new bone laid down at the end of the shaft. In between and at the junction are the young cartilage cells, which continue their activity throughout the period of active growth. On these, growth in length of the long bone depends.

An essentially similar process occurs in the vertebral column, and the bodies of the vertebrae grow by addition of bone to their superior and inferior surfaces. In one respect does this process differ from that in the growth cartilages of the long bones, in that the number of cells in the cartilage columns is fewer. Moreover, the secondary centres of ossification take the form of an annulus of bone, and it is only the periphery which is ossified. Thus annular epiphyses are formed which in due course unite with the bodies of the vertebrae and limit the growth in length of the vertebral column.

Factors Influencing Growth

It is difficult to enumerate the factors influencing growth, for they are many and ill defined. In the first place the nature of the growth impulse inherent in living things is entirely unknown. Of all the phenomena in the realm of growth this inherent tendency of living organisms to grow is the most remarkable. Yet it has recently been demonstrated by experiment that if the anterior lobe of the pituitary is removed an animal may continue to live but not to grow, unless anterior pituitary implantation is performed or anterior pituitary feeding instituted.

Not only is the power of growth inherent in the living cell—and it has to be remembered that living cells will grow and multiply by division under appropriate conditions even if separated from the organism of which they are part—but they retain *in vitro* the power of growth and differentiation to produce form. Fell (1928–9) has successfully grown in a small tissue chamber the early limb buds of the chick. The isolated fragments from the proximal part of the limb grew and differentiated in the tissue chamber, so that the various features were reproduced as in the living organism.

Heredity

Of the influences affecting growth some appear to be predetermined by inheritance and others to result from internal or external circumstance. In man the hereditary growth tendency has been linked up with the endocrine constitution of the individual. Racial gigantism and dwarfism, for instance, have been related to the activity of the pituitary. Though endocrine constitution is determined largely by heredity the recent work of experimental embryologists suggests that endocrine influences are not the main cause of racial peculiarities of this type. Harrison (1935) and others, for instance, in their experimental work on the transplantation of limbs, have shown that, under the same endocrine environment, limbs and other structures from two species of different sizes will respond differently and according to their inherited growth capacity. The chief factor in the production of hereditary racial types seems to be genetic constitution.

Anterior Pituitary Growth Hormone

Of the hormones of the endocrine glands influencing growth that from the anterior lobe of the pituitary is all-important. In fact its effect on general growth seems to predominate over that of the other endocrine secretions. Its discovery is due to Evans and Long (1921). Striking increase of growth has been reported from its injection into normal rats, and the rate of growth in rats dwarfed by hypophysectomy has also been restored. It appears to

produce its growth-stimulating effects specifically on the tissues, and also affects development through the intermediation of other glands—the thyroid, adrenals, and sex glands, which are under anterior pituitary control. This interaction of the endocrine glands, well known but only partly understood, is another complicating factor in our elucidation of their respective growth influences.

There is no definite information yet as to the mode of action of the anterior pituitary growth hormone, either on the tissues in general or on the growth cartilages, though Evans (1933) observes that the failure of the bones to increase in length after hypophysectomy is apparently due to failure of development of the cartilage cells in the epiphyseal disks. It would seem that the growth hormone has a stimulating effect on the growth of cartilage as on the other tissues of the body. Normal animals show a strikingly increased appetite and food consumption under its influence. The experiments of Lee and Schaffer (1934), using the paired feeding method of Mitchell (1929–30), have demonstrated that normal rats treated with growth hormone increase their body substance more than controls given the same food. Other experiments have shown that the results of growth hormone administration depend on at least two factors—dosage and "receptivity" of the tissues. The latter varies much in different species. Evans (1935), again, has demonstrated that whereas dogs —the dachshund and the shepherd-dog—give a marked acromegalic response to injections of growth hormone other species of animal—for example, the rat and the rabbit—do not readily do so. Evans (1935a) has also pointed out that there is in "responsive" animals a maximum reaction which cannot be exceeded, and that when this has been arrived at multiplying the dose by two or ten times makes no difference. The limit of the body's capacity to grow has been reached, and apparently the limit of the body's capacity to utilize the hormone. At no time has a rate of growth in excess of the most rapid growth known for post-natal life been induced, nor does a rapid rate continue indefinitely under growth hormone administration.

Thyroid

The thyroid gland is known to exert a considerable influence on growth and development, and recent experimental work has shown that it is under anterior pituitary control. This relationship makes it difficult to assess the importance of the thyroid itself in normal growth processes. The results, however, of thyroid extirpation and feeding in young animals make it clear that in the absence of the thyroid normal growth cannot continue. The chief action of thyroxine is as a metabolic stimulant, and under its influence all cells of the body are stimulated to increased activity. Aldrich (1936) has pointed out that this accounts for its stimulating effect on general growth, for in young animals any process which tends to increase activity of cells must of necessity stimulate growth. Theoretically in immature organisms differentiation must be hastened as well. This is borne out by experimental observation, for thyroid feeding in tadpoles produces premature metamorphosis. Although growth is temporarily stimulated, stature is limited and miniature frogs result. From a quantitative standpoint, therefore, the thyroid hormone stimulates growth only temporarily. From the qualitative point of view it is extremely important at all times. Without it normal development and function cannot be attained, and this applies to the growth cartilages of the skeleton as to other tissues. Without thyroid function growth and development are retarded.

Thymus

Recent experimental work points also to the thymus as having an important influence on growth and development, for Hanson (1936) and his co-workers have shown that in rats thymus extract, when administered intraperitoneally and continuously through successive generations of parents, leads to striking acceleration of growth and development of successive generations of young. The young of the third and succeeding generations are said to grow and develop physically at a remarkable rate. They do not, however, become giant rats, as the rapid rate of growth decreases from the second month on. It is possible that the continuance of thymus injections through several generations may provide the key to these results. These experiments have been adequately controlled, but further confirmation must be obtained before the influence of the thymus on growth and development can be accepted as proven.

Sex Hormones

The influence of the sex hormones on growth, an apparently indirect effect by inducing maturity and controlling the time of fusion of the epiphyses, will be considered in the next section. The part of the adrenals and pineal and their relation to sex precosity will be considered subsequently too.

External Factors

Of external factors influencing the growth process climate, season, food, and disease play important parts, and of these the last two are of most significance.

Vitamins

Our knowledge of vitamins and their influence on growth has been due to the work of Hopkins (1912) and Mellanby (1921) in this country, and Hess (1930), McCollum (1927), and their co-workers in the United States. The presence of small amounts in the food of vitamins A, B, C, and D is essential for normal health, and deprivation of any one of them results in complete cessation of growth. In addition to their influence on general growth they exert specific effects on certain tissues —vitamin A, for instance, on epithelial structures, vitamin B on nervous tissue, vitamin C on the vascular system, and vitamin D on cartilage and its calcification. Experiments have demonstrated that young rats fed on a satisfactory diet but deficient in vitamin A grow for a short time only and then cease to put on weight and gradually go downhill. They are especially liable to succumb to intercurrent infections. The presence of vitamin B is equally important, for young rats fed on a diet otherwise satisfactory but deficient in vitamin B also immediately stop growing and develop digestive and a number of other symptoms. Harris (1926) regards the functions of vitamins A and B in the general growth process as essentially different, the fat-soluble A vitamin being chiefly concerned with differentiation—that is, a specialized function (the differentiation of osteoblasts, for example)—the water-soluble vitamin B being concerned with vegetative function (growth promotion, for instance). Moreover, he would employ the term "anti-infective," introduced by Green and Mellanby (1928), in regard to vitamin A only in so far as the fully differentiated cell is less susceptible to disease than the poorly differentiated cell, whether it be in the conjunctiva of the eye or bone.

The influence of vitamins C and D is more apparent on specific growth processes. In the absence of vitamin C capillary haemorrhages occur, and in infantile scurvy may

be found at the diaphyseal capillary loops, the resulting extravasation of blood tending to disrupt the calcified cartilage and newly formed bone. Vitamin D, on the other hand, in the presence of a normal calcium–phosphorus ratio is essential for the calcification of cartilage, and in its absence the growing animal or child develops rickets.

Diet

Of the importance of diet in the production of normal growth there can be little doubt, and many observations could be cited in support of this view. To quote a recent illustration, the work of Corry Mann (1926) may be mentioned. He showed that an additional daily allowance of a pint of milk considerably increased the rate of growth of boys. By control experiments he proved that this enhanced rate of growth was not due to the correction of any absolute deficiency, either in the total energy value of the diet or in the magnitude of its protein, carbohydrate, or fat content. The Scottish Board of Health (1928, 1929) later repeated this work, and obtained similar results. At the same time it showed that skimmed milk had almost the same stimulating effect on growth as whole milk, an observation which appeared to rule out the possibility that its fat-soluble vitamins were concerned. It would be interesting to speculate on the nature of the growth-promoting constituent of milk; but here perhaps it is sufficient to recall the work of Hopkins (1912) and his followers. They showed that certain proteins yielded on digestion essential amino-acids without which growth could not take place Animal protein, particularly in the form of whole milk, cheese, eggs, fish, and meat, was necessary in the diet in order to provide the essential amino-acids.

Factors Limiting Growth

It is a well-established fact that, in the normal, limitation of longitudinal growth is closely associated with activation of the reproductive system. With the advent of sexual maturity, closure of the epiphyseal junctions occurs and longitudinal growth ceases. The essential feature appears to be a maturation and senescent change in the growth cartilage, proliferation ceasing whilst ossification of the epiphyseal disks occurs. How the sex gland hormones produce these effects is not known at the present moment, but the phenomenon would seem to be analogous with the changes of maturity which occur in the body as a whole as a result of their agency. As yet experimental evidence from the administration of gonad extracts has not been reported, no doubt because active preparations of the sex hormones have only recently become available. Evans (1935b), however, mentions a significant result in his experiments with puppies. A preparation of growth extract contaminated with gonadotropic hormone, and inadvertently given, produced not only a growth effect but activation of the reproductive system in a hypophysectomized animal. Although the growth response was rapid, epiphyseal ossification occurred shortly after the resulting oestrus and growth ceased. Though other experimental observations of this type are still lacking, there is considerable evidence from castration in animals and in human beings of the relation between the sex hormone and epiphyseal fusion. Not only does the castration of cocks result in increased length of limbs with retarded ossification of the epiphyseal cartilages, but similar results have been obtained in dogs, horses, and cattle. Castration before maturity in man also results in excessive growth of the long bones with unossified epiphyseal cartilages, as shown by the investigations of Launois and Roy (1904), Tandler and Gross (1910), and many others. Clinical observations in eunuchoidism support these experimental results, whilst cases have been reported of the opposite condition of precocious puberty in which premature fusion of the epiphyseal junctions has occurred. There can be no question that activation of the reproductive system is of paramount influence in limiting normal growth, and now that the sex hormones have become available for experimental work it should not be long before their mode of action on the growth cartilages is revealed.

Though sex gland maturity plays the dominating part in epiphyseal fusion under normal conditions, there are other influences, notably infective and metabolic diseases, which have a similar and sometimes pronounced effect in limiting the growth of the skeleton. These influences have been suspected in the past, but recently Harris (1933d) has provided convincing histological and radiological proof of their mode of action. He finds that the growth cartilages are inordinately sensitive to illness, and that during the period of growth any serious interference with nutrition, from starvation, acute infection, or metabolic disease, may induce changes of premature senescence. The fact is registered in the structure of the bone by a transverse line of arrested growth. This is essentially a defensive mechanism in the bone, and when the child is ill or, starved the growth cartilages cease to proliferate and become heavily calcified. When growth is resumed the line appears as a scar in the bone and can be demonstrated radiologically. Such lines, he finds, differ histologically only in extent from the lines of complete cessation of growth which appear as a result of the final calcification of the epiphyseal junction. Moreover, if the nociceptive stimulus, metabolic deficiency, or disease is sufficiently severe complete ossification of the growth cartilages may occur prematurely. Such a condition has been found not infrequently in children who during the second decade have suffered from a series of severe infections, particularly the exanthemata, in quick succession, and this has resulted in dwarfism.

It may be concluded, therefore, that the chief factor in limiting growth in the normal is activation of the reproductive system, which appears to produce its effect by some as yet unstudied process of maturation in the growth cartilages. The influence of disease may produce similar changes—senescence of cartilage cells, with ossification and premature epiphyseal fusion.

GIGANTISM

The condition of gigantism may be defined as a general symmetrical overgrowth of the body which differs only from physiological development in that the length of the body and size of the viscera exceed considerably the average measurements peculiar to the race. For many years clinicians have held the view that the explanation of this anomaly was an over-production of growth hormone by the anterior lobe of the pituitary. The site of production of this hormone, moreover, was thought to be the eosinophil cells, as many cases of gigantism were associated either with eosinophil adenomata or eosinophil hyperplasia of the anterior pituitary. The correctness of this hypothesis and the presence of growth hormone in the anterior lobe was not, however, demonstrated for certain until Evans and Long (1921) reported the experimental production of gigantic rats by long-continued intraperitoneal injections of anterior lobe extracts. The growth curves of the treated animals showed a steady continuance of growth as opposed to the customary slowing or "plateau" of growth in the untreated controls as they

reached adulthood. The weight of the treated animals as against their litter-mates was doubled. The giants were symmetrically proportioned. Radiological examination or preparations of the osseous system showed that proportions of one and a half times the normal were attained. Thus experimental confirmation of the relation between the anterior pituitary and gigantism in man was obtained. No source of growth hormone preparations other than anterior lobe tissue has yet been discovered, and it seems likely that for true pathological gigantism to occur an excessive activity of the anterior lobe eosinophil cells during the active growth period is necessary.

It is usual to classify gigantism into the simple hereditary and endocrine types, and of the latter there are two groups —the acromegalic and the hypogonadal. The great majority of giants belong to the endocrine group, and their abnormal development is due to hormonal disturbance of growth.

Simple Hereditary Gigantism

Simple hereditary gigantism should not be regarded as a pathological condition, for, apart from excessive stature and macrosomia, neither the skeleton nor other organs of the body show any evidence of disease. It is essentially an inherited characteristic and is dependent on chromosomal constitution. In many of the recorded instances of this form of gigantism hereditary influences on both sides of the family have been pronounced. It is attractive to speculate on the degree of pituitary eosinophilia in these individuals, but the work of experimental embryologists (already mentioned) must be borne in mind. Harrison (1935) and others have shown that under the same endocrine environment limbs or other structures from two species of different sizes will respond differently and according to their inherited growth capacity. It would appear, therefore, that genetic constitution is the main influence in simple hereditary gigantism.

Acromegalic or Hyperpituitary Gigantism

The view has long been held that hyperfunction of the anterior pituitary before puberty leads to gigantism and afterwards to acromegaly, and it is now generally accepted that the skeletal changes in gigantism and acromegaly are expressions of a similar pathological influence occurring at different periods of life. Massalongo (1892) first suggested that acromegaly was delayed gigantism, and Brissaud and Meige (1895) emphasized that the diseases were essentially similar but of different periods—adolescence and adult life. Later Launois and Roy (1904) pointed out that gigantism was acromegaly in individuals with unossified epiphyses. The experience of clinicians since that time has certainly emphasized the close relation between the two conditions, for it is a well-established fact that many giants sooner or later acquire acromegalic features, whilst acromegalics sometimes show manifestations of gigantism. Pathological investigations, too, have shown the essential similarity of the pathological processes; for not only are gigantism and acromegaly associated with hyperplasia, or, more commonly, adenomatous tumefaction of the eosinophil cells of the anterior pituitary, but in both conditions a visceral splanchnomegaly occurs with hyperplasia or adenomatosis of the thyroid gland and adrenal cortex. In the light of recent experimental work this is what would be expected from hyperfunction of the anterior lobe, for in addition to its growth hormone it also secretes thyrotropic and adrenotropic hormones.

Any insecurity in this clinico-pathological interpretation that gigantism and acromegaly were due to over-activity of the anterior pituitary may be said to have ended with the experimental production of gigantic rats and of acromegalic dogs. The experiments of Evans and Long (1921) in producing gigantic rats with growth hormone given parenterally have already been considered. Evans (1935c) has suggested that if one could learn to close prematurely the epiphyseal disks of rats one might hope to make them acromegalic, but the rat is an animal whose epiphyses never close. On the other hand, he has found that in the shepherd-dog, by administration of the same growth extract which caused symmetrical gigantism in the rat, typical acromegalic features could be produced. He considers that while some animals, notably the rat and the rabbit, do not become acromegalic, others, such as the dog, readily do—an instance of differing reactions of the body tissues of different strains to the same substance. Does it not seem probable that similar constitutional peculiarities may explain the differing reactions of human beings to excess of growth hormone—that is, the varying combinations of acromegaly and gigantism found in man?

Although there have been many examples of gigantism recorded in the literature it must be regarded as a rare condition. Cushing (1927) points out that this is due to the fact that adenoma formation characterizes adult life and that pre-adolescent hyperpituitarism associated with an eosinophil adenoma is a rarity. In his series of sixty-five verified cases of acromegaly all showed an excess of this type of cell, but true acromegalic giants were rare. In Bailey and Davidoff's (1925) analysis of a consecutive series of 100 cases of hyperpituitarism there was only one example of a true giant without acromegalic features, though in a few of the patients the disease had started early enough to produce increase in stature. This individual began to grow rapidly at the age of 13, and by the age of 21, when he was under observation, had attained a height of 6 ft. 8 in. His bodily proportions were normal. This man had bodily features similar to those produced in experimental gigantism. The pituitary tumour was a typical eosinophil adenoma.

Judging by recorded instances it would seem that hyperpituitary gigantism usually starts at the time of puberty, and is characterized by very rapid skeletal growth during the next few years. Sooner or later the presence of the pituitary tumour causes headache and other neighbourhood symptoms. In most cases hyperpituitary giants have not been as strong as their size might indicate, and, as Cushing says, some of them present hypopituitary symptoms before they die.

The stature of recorded cases has varied from 7 ft. 6 in. to 8 ft. 6 in. (the famous giant in Trinity College, Dublin). Rössle (1917) states that authentic instances of human giants of 9 ft. cannot be established.

Hypogonadal or Eunuchoid Gigantism

A clinical relation between gigantism and sex gland deficiency has frequently been observed, and the latter is thought to be an important factor in the overgrowth of these cases. In some castrates considerable height is attained, but overgrowth when it is found in the eunuch is seldom sufficient to warrant the use of the term "gigantism." It can readily be appreciated that delayed fusion of the epiphyseal junctions such as is characteristic of eunuchoidism would favour the production of gigantism in the presence of anterior lobe eosinophil activity. In hypogonadal gigantism it is usually assumed that there are two factors present encouraging overgrowth: first, the lack of the restraining influence normally exerted by the sex glands; and, secondly, pituitary eosinophilia.

Although the clinical features of eunuchoid gigantism favour a primary hypogonadal aetiology, and in some instances the pathological findings a congenital gonadal hypoplasia, recently acquired knowledge that the sex glands are activated by the anterior pituitary gonadotropic hormones, probably from the basophil cells, suggests that the gonadal deficiency in eunuchoid gigantism may have arisen primarily in the anterior pituitary too. It has, in fact, been suggested that the growth and sex hormones of the anterior pituitary are mutually inhibitory, but no direct proof of this has been obtained. A knowledge of the histology of the anterior pituitary in conditions in which the growth–sex relationship is disturbed is obviously important, but up to the present this information has not been forthcoming. Differential cell counts in the normal anterior pituitary have been studied under varying circumstances and at different periods of life. Roughly, the eosinophil–basophil cell percentages correspond with functional demands. During active growth periods the eosinophil cells reach their maximum, whilst at the time of sexual maturation the basophils are increased. Nothing definite, however, is known of the eosinophil–basophil cell relation in hypogonadal gigantism.

Clinically the cases reported have had their onset in adolescence and been characterized by disproportionate length of the limbs as compared with the trunk, infantile genitalia, and an absence of the secondary sex characteristics and of the acromegalic accompaniments found in hyperpituitary gigantism. The stature attained by hypogonadal giants is not as a rule as great as in the hyperpituitary type.

In review, the outstanding features of pathological gigantism may be reconsidered. In the first place, the most important aetiological factor in the conditions described has been an anterior lobe pituitary eosinophilia with over-production of growth hormone. As yet no other endocrine secretion has been shown to have similar effects. Our knowledge is still lacking as to the possible effects of over-nutrition and hypervitaminosis as factors in producing overgrowth.

In hyperpituitary gigantism the growth and differential growth curves are essentially an exaggeration of the normal. General symmetrical overgrowth is the characteristic feature, though in some instances localized overgrowth in the form of acromegalic changes may be in evidence too. The clinical picture closely approaches that of experimental gigantism in animals, produced by administration of growth hormone. In hypogonadal gigantism an additional feature favouring overgrowth is present—delayed closure of the epiphyses. In these individuals the growth curve in adolescence is prolonged beyond the normal and often far into adult life. Disproportion of the skeleton, unusual length of limb as compared with the trunk, results from a failure of the growth cartilages to undergo the changes of maturity at the usual time.

At the present moment the mode of action of the sex hormones in producing changes of maturity in growth cartilages and of the anterior pituitary growth hormone in stimulating this tissue is not understood.

MACROSOMIA PRAECOX

Some insight into the factors concerned in growth and development can be obtained from a study of a comparatively rare group of conditions in childhood, in which transitory overgrowth accompanies precocious development of the reproductive organs. These pathological states are usually included under the heading of macrosomia praecox or macrogenitosomia praecox, owing to their common and predominant features, somatic and genital precocity. It is important to recognize that, although such children appear remarkably overgrown when they come under observation, they do not in adult life exhibit gigantism. In fact in cases which survive to adult life the reverse is usually found: premature closure of the epiphyses, associated with early maturation of the reproductive system, has resulted in cessation of longitudinal growth long before the usual age, and they are dwarfed. More often, however, the pathological lesion is malignant and death occurs before adulthood is reached. In macrosomia praecox there is essentially a disturbance of the "time" factor of growth and development, and the somatic and sexual changes of puberty are projected into early life. The transitory macrosomia must not be regarded as clinical evidence of a longitudinal-growth-stimulating effect from the sex hormones comparable to that of the anterior pituitary growth hormone, for the changes are essentially those of maturity occurring prematurely.

As causes of macrogenitosomia three different types of pathological lesion have been described—tumours of the sex glands, tumours of the pineal, and tumours of the adrenal cortex. In the first two groups the precocious development seems to be essentially a true and actual functional sexual precocity. In the female menstruation occurs at an early age, and in the male priapism and spermatogenesis. Tumours of the sex glands have been reported in both sexes, but tumours of the pineal occur almost exclusively in males. Tumours of the adrenal cortex, on the other hand, do not produce a true functional sex precocity (Krabbe, 1921; Grollman, 1936), for, in spite of the skeletal, somatic, and sex changes suggestive of this, menstruation does not occur in the female nor spermatogenesis in the male. The condition is usually referred to as the juvenile adreno-genital syndrome, and is more commonly found in female children, in whom signs of masculinization appear. In the male, when affected, premature over-masculinization develops.

In all three syndromes—genital, pineal, and adrenal—the outstanding features are skeletal, somatic, and sex development inappropriate to the age of the individual and suggestive of adulthood. Bone development is advanced correspondingly, ossification centres appear early, and epiphyseal fusion occurs prematurely.

True Precocious Puberty Associated with Tumours of the Sex Glands

The syndrome of true precocious puberty in the female with the characteristic somatic and sexual changes of the sex is found with granulosa-cell tumours of the ovary as reported originally by Novak and Long (1933). These tumours develop from granulosa cell-rests arising from the early oophorogenic structures in the sex gland area. They are more common in later life, but when they develop during childhood true sexual precocity occurs. The granulosa cell is a typically feminine cell and produces the female sex hormone. Granulosa-cell tumours secrete large quantities of oestrogenic substance which is responsible for the sex changes and over-accentuation of the female sex characters. In children menstruation has been observed as early as the first year, together with such secondary sex characters as mammary hypertrophy, the growth of genital and axillary hair, increased growth, the typical post-puberal feminine contour, and increased size of the uterus almost to puberal size. Novak and Long consider that the majority of these tumours are adenomata, and when malignancy occurs it is usually of a low grade

In the male sexual precocity from testicular tumours is even more rare; at least, reports of only three cases verified at operation appear in the literature. Perhaps the best known is that of Sacchi (1895), a boy of 9½ years who presented macrosomia and sexual and mental precocity. After excision of a testicular tumour the precocity gradually disappeared. The tumour was reported upon as an alveolar carcinoma; but Cushing (1912) who commented on the case suggested an interstitial-cell origin. This boy was 4 ft. 8½ in. in height and weighed 7 st. A case similar to Sacchi's was reported by Rowlands and Nicholson (1929)—an interstitial-cell tumour; and Stewart, Bell, and Roehlke (1936) recorded a similar case in a boy of 5 years of age with precocious puberty—also an interstitial-cell tumour. The boy's height was 4 ft. 3 in. and weight 4 st. 4 lb. The occurrence of such cases confirms the view that the interstitial cells of the testis secrete the hormone which influences the development of the secondary sex characteristics of the male and which in these cases brought about the premature growth and skeletal and muscular development.

The Pineal Syndrome

A similar syndrome of macrogenitosomia praecox, overgrowth and sex precocity, has been reported in a number of instances in connexion with pineal tumours in boys, but whether the associated sexual and somatic changes are due to disturbed function of the pineal body is still quite undecided. There is, in fact, as yet, no satisfactory evidence or agreement as to an endocrine function in this organ. The chief theory advanced to account for the relation between pineal tumour and sex precocity assumes that normally a secretion from the pineal inhibits puberty and that, in the abnormal, destruction of the pineal allows the sex changes to appear. Horrax and Bailey (1925), summing up the position, thought that the best that could be said at the moment was that pineal tumours, particularly teratomata in male children before puberty, might be associated with precocious puberty, such precocity, if combined with signs of increased intracranial tension and evidence suggesting implication of structures in the neighbourhood of the pineal body, was strong evidence of a pineal tumour. This did not mean that they regarded the pineal body as an endocrine gland with sex-controlling functions. Haldeman (1927) reviewed 113 cases reported as pineal tumours. In only ten was there convincing evidence that the tumour was a pinealoma. In sixteen only of the 113 cases was precocious puberty noted, and nine of these tumours were teratomata. Not one verified pinealoma was associated with the "pineal syndrome" of macrogenitosomia praecox. Then Horrax and Bailey (1928) reported a typical case of macrogenitosomia praecox associated with an astrocytoma in the third ventricle, the pineal body not being involved by the growth. Ford and Guild (1937) reported three cases in which inflammatory processes involving the nervous system were followed by precocious sexual development, and, reviewing the whole subject of the "pineal syndrome," concluded that the "pineal" tumours found in cases of macrogenitosomia praecox had only one feature in common—that they arose in the general region of the pineal body or extended into this region. They were of the opinion that the pineal body played no significant part in the production of macrogenitosomia praecox and that the syndrome, though it was impossible to venture a definite opinion as to the exact location of the lesion, was most probably due directly or indirectly to a destructive process in the walls of the third ventricle. This seems to be the view most generally acceptable at the present time as regards the aetiology of the pineal syndrome. The clinical picture, apart from the neurological signs, is similar to that of macrogenitosomia praecox due to interstitial-celled testicular tumours.

The Juvenile Adreno-genital Syndrome

The adreno-genital syndrome in children is predominantly an affection of the female, though it has been reported in boys. It is produced by tumours of the adrenal cortex, either benign or malignant. It has been attributed to hyperfunction of the adrenal cortical cells with the elaboration of an excess of their specific hormone. Grollman (1936), however, points out that this is not in accord with available facts. The adrenal cortical hormone has not been shown to have any effects on the reproductive system analogous to those observed in the adreno-genital syndrome, nor are cortical adrenal tumours proper, adenomata and carcinomata, associated with changes in the sex glands. He therefore has suggested that it is only a specific type of cortical hyperplasia which is associated with such disorders of the reproductive system, actually a hyperplasia of the juxtamedullary or, as he prefers to describe it, androgenic zone. This he considers is anatomically and functionally distinct from the rest of the cortex and normally only of temporary existence, disappearing in the first year of life. Grollman's thesis requires further proof, but he has brought forward evidence and pointed out that it is in accord with the known facts and permits a logical explanation of adreno-genital relationships which are otherwise inexplicable. In this connexion it should be mentioned that Broster and Vines (1933), working histologically on adrenals removed from cases of the adreno-genital syndrome, have found that the juxtamedullary tissue takes up a special fuchsinophil stain which differentiates it from normal cortical tissue.

The characteristic features of the juvenile adreno-genital syndrome in young girls are overgrowth and the premature appearance of secondary sex characteristics of the male type, hypertrichosis, hypertrophy of the labia, and enlargement of the clitoris, but menstruation does not occur. In male children there is overgrowth with hypertrichosis and enlargement of the external genitalia, but the testes remain immature and do not show spermatogenesis. In both sexes the patients acquire an adult appearance, and owing to their pronounced muscular development have been referred to as the "infant Hercules" type. Bone development is much advanced for age, ossification centres appear early, and epiphyseal fusion takes place prematurely. Arrhenoblastomas of the ovary, as has been reported by Novak and Long (1933), produce an almost identical condition. The masculinizing tendencies of these tumours are believed to be due to their origin from undifferentiated cells in the rete ovarii, the female homologue of the testis.

The special features of the group of conditions included under the general heading of macrosomia praecox may be summarized as follows. The essential abnormality is a disturbance of the time factor of growth and development, and changes which should occur in adolescence are projected into earlier life. An impression of overgrowth and overdevelopment is thus created, but it is only relative to the age of the individual. Premature senescent changes in the growth cartilages result in early fusion of the epiphyses and early cessation of growth. The general bodily, skeletal, and sex changes may be attributed to the action of the sex glands and their hormones, either

primarily or secondarily involved. The sex changes represent a true precocity in the case of the sex-gland tumours but a pseudo-precocity only in the juvenile adreno-genital syndrome. The growth curve in macrogenitosomia praecox is unduly precipitate in comparison with the normal, and the short-limbed, disproportioned skeleton which is found is due to premature fusion of the long bone epiphyses before the active limb lengthening and "springing-up" period of the second dentition.

[A full list of references will appear next week at the conclusion of the second lecture.]

AURICULAR FLUTTER CONTINUING FOR TWENTY-FOUR YEARS

BY

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In May, 1912, I saw a clergyman aged 53 who related that he had suffered from paroxysms of tachycardia since his boyhood, and that three years before I saw him his pulse had become persistently rapid, varying only between 140 and 160 beats per minute. He was under my observation for a month, during which I took many electrocardiograms from him. These showed auricular flutter, the auricular rate being usually between 280 and 300, occasionally falling a little lower or rising a little higher. Except while under digitalis, the ventricular was always half the auricular rate. Slowing could only be obtained by digitalis if the patient was nauseated, and by strophanthus only if the patient suffered purgation; both forms of drug treatment were consequently abandoned.

It is to be noted that the rates obtained electrocardiographically strikingly confirmed the patient's own statement of rates; he was an intelligent man and unusually accurate in observation. His case was reported in *Heart*, 1912, **4**, 179 (Case 3), and his curves are illustrated by Fig. 28 of that paper (see Fig. 1). He was anxious about

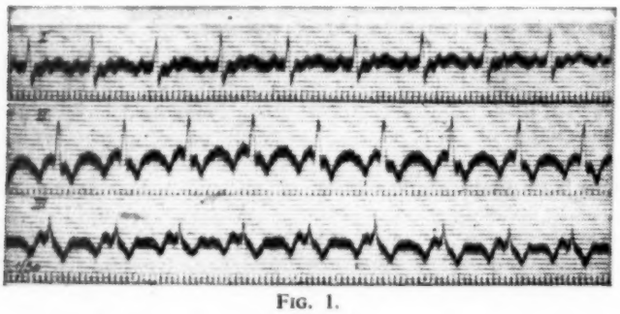

FIG. 1.

himself and suffered easily from fatigue, but no signs of cardiac affection other than that of flutter could be found in him.

A few years after I first saw him he retired from work in a very busy parish, but continued in lighter posts until shortly before he visited me in June, 1933, when he was in his seventy-fourth year. He then told me that his heart had continued to beat rapidly and regularly during the intervening twenty-one years, but that he had enjoyed very fair health, though unable to walk more than a mile without undue fatigue. He said that his heart still beat rapidly, though not so rapidly as formerly, the rhythm being usually 84 to 102 and regular. I found him very alert and vigorous for his age, presenting no other signs of heart affection but the old-standing tachycardia. His auricles were still fluttering, though the rate in the curves was 210 to 214, the ventricles responding at half this rate (Fig. 2). This change of rate and prolongation of

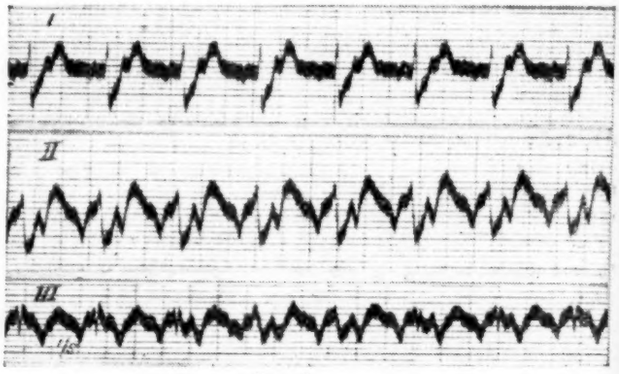

FIG. 2.

the initial phases of his ventricular curve were the only notable features of the electrocardiogram.

He writes in 1937 to say that his condition is unchanged and his health satisfactory.

Commentary

The case is of exceptional interest for three reasons. First, the auricles seem to have fluttered without cessation for twenty-four (if not twenty-seven) years. Secondly, although the ventricle during the greater part of this period has been driven at very excessive rates, the efficiency of the heart has not been impaired by its increased energy expenditure. Thirdly, the rate of auricular beating has fallen about 80 beats per minute. This fall might be attributed to lengthening of the circular path around which the wave travels, or more probably to its slower speed of movement. It would be interesting to know if lowering of rate is usual in auricular flutter as age greatly advances.

P. Duval and J.-Ch. Roux (*Presse méd.*, March 6, 1937, p. 353) draw attention to the different reactions of individuals to similar surgical interventions. The incessant breaking down and reconstruction of tissue frees certain toxic albuminoids in the blood, and it is suggested that the varying degrees of susceptibility to the products of disintegration may account for the variations in resistance shown by certain individuals to different crises. This variability is particularly noticeable following surgical treatment or burns, when such intoxication takes place. Two patients may undergo identical operations under exactly similar conditions, but whereas one will suffer a severe post-operative reaction, the other will show no such symptoms or signs. It is suggested that the reason for this is the autogenous susceptibility of the first patient and the lack of susceptibility in the second. It is also known that the reaction which follows a second operation is usually more severe than that which followed the first, showing that the original operation brought about a condition of increased susceptibility in the patient. The same variability is noted in two similar cases of burns of equal severity; one patient died after four days from severe intoxication, while the other survived this period of intoxication and only succumbed on the twelfth day to infection. Analysis showed that the biological reactions were much stronger in the first case than in the second. Similar conditions are seen in other lesions such as severe bruising, haemarthrosis, haemothorax, or jaundice.

HYPO-ADRENALISM AND PELLAGRA

THE ROLE OF VITAMIN DEFICIENCY

BY

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Pellagra is commonly regarded as a disease due to deficiency of vitamin B_2, and the impression prevails that, confronted with this illness, we need merely add yeast to the patient's diet in order to effect a cure. That vitamin deficiency plays a very important part is indisputable; in this paper, however, it is suggested that B_2 avitaminosis is not the sole causative factor. Moreover, Parfitt (1936) recently reported that after large doses of yeast a patient suffering from pellagra improved dramatically, only to collapse suddenly and die some days later. Pellagrous dermatitis may clear up after vitamin B_2 has been given, but it seems clear that vitamin C may be equally effective (*vide infra*). Again, Biggam and Ghalioungui (1933) reported considerable success with massive doses of iron in an extensive series of cases of pellagra. In a child of 8 years whom I have at present under my care, a dermatitis coming on after exposure to strong sunlight, and very suggestive of pellagra, has cleared up more than once after vitamin B_2, but the patient's general condition, mental and physical, is steadily deteriorating. It ought therefore to be realized, as Muir (1936) says, that further investigation is necessary before we can pronounce as to the relation of vitamin B_2 to pellagra.

Leaving for the present the problem of the exact association of vitamins with pellagra, the undernoted case history is submitted. This shows once again what has been brought forward from time to time during the past thirty-five years, that there exists a close connexion between pellagra and suprarenal hypofunction; and the purpose of this paper is to suggest that the fundamental aetiological factor in pellagra is hypo-adrenalism, avitaminosis acting only as an accessory cause.

Illustrative Case

The patient was a woman of 45, happily married and comfortably off; she had two sons, 18 and 15 years of age. Her husband and children were in good health. She was born in Scotland, and both her parents were of pure Scottish extraction. On December 5, 1935, she was admitted to hospital complaining of weakness, lassitude, anxiety, nervousness, insomnia, anorexia, constipation, abdominal pain, and discomfort, all of six months' duration. She was, however, well nourished, and had been taking a good mixed diet. Her height was 5 ft. 3 in. and her weight 9 st. 3 lb. Investigation failed to disclose any gross physical abnormality; the blood Wassermann reaction was negative.

The tentative diagnosis was one of hypochondriasis, with, however, this important reservation—that there might be present some undefinable endocrine disorder. The reasons for this reservation were as follows: (1) The patient had a history of hyperthyroidism in 1928, from which illness she was supposed to have made a good recovery under medical treatment. (2) Her appearance suggested a peculiar compound of hyperthyroidism and hypothyroidism. (3) She was distinctly Italian-looking, her skin exhibiting a generalized amber pigmentation and her hair being very dark and of silky texture. Suprarenal hypofunction, as a possible cause of her illness, was considered. Nevertheless, as her blood pressure was normal, and as at times she jogged herself out of her ideas of weakness and lassitude, especially when she had visitors at her bedside, and as *x*-ray examination revealed no suggestive shadows either in the chest or in the suprarenal areas, no confirmatory evidence could then be obtained.

On December 28, twenty-three days after admission, she was allowed to go home. She had taken a well-balanced diet, there had been no evidence of gastro-intestinal upset, and, aided by an occasional grain of luminal, she had slept quite well. She was improved in bodily and mental health.

Two months later she had so far relapsed that she was referred back to hospital from the Public Health Department Out-patient Psychiatric Clinic. Readmitted on March 5, 1936, she again complained of abdominal and anxiety symptoms. Noteworthy points on physical investigation were: blood pressure, 130/80; pulse, 85; menstruation, which had been absent for fifteen months until November, 1935, was now regular, but diminishing in quantity; exophthalmos was present; the face was puffy and the whites of the eyes pearly; the ocular fundi were normal; the skin of the forearms and hands was rough and very cold to the touch; a fractional test meal showed achlorhydria; the deep reflexes were exaggerated; there was a fine tremor of the hands; radiographs of the chest were negative and of the abdomen showed visceroptosis. Two points should be specially noted: (1) with regard to pigmentation, a slight deepening of the generalized amber colour had occurred; (2) the body weight had fallen to 7 st. 10 lb., a loss of 21 lb. in about ten weeks. Mentally, an element of depression had moved well into the foreground, but there was no retardation; and memory, orientation, and perception were normal.

On April 25, 1936, the patient developed an acute tonsillitis (*Streptococcus viridans*); this completely cleared up within a fortnight, with subsequent substantial mental and physical improvement. On June 16 she complained of headache and insomnia, which persisted for over a week. On July 11 she developed marked diarrhoea, which proved extremely difficult to overcome. Bacteriological examination of stools revealed no abnormality. About the middle of August a marked change took place in her mental condition; she became exceedingly dull and depressed. She presented the picture of an acute agitated melancholia, and the power of ideation, previously always well developed, now became notably deficient. She then began to waste, and her weight quickly fell to 6 st. 6 lb.; she felt very weak. A deep-brownish pigmentation appeared symmetrically on the dorsum of the hand and wrist, and a few spots on the neck. The blood pressure fell down to 90 mm. Hg systolic, and diarrhoea returned. A diagnosis of Addison's disease was made, and vigorous treatment was started by the excess sodium chloride method, including large doses of intravenous saline daily. Suprarenal and mixed gland extracts—desiccated suprarenal gland adrenal substance, Parke, Davis and Co., and mixed gland (female) tablets, Evans Sons Lescher and Webb, two tablets of each three times daily—were also given and, generally, all stimulating measures were adopted. Her appetite was poor, but care was taken to see that she received a full, well-balanced diet, with plenty of vitamins. She showed immediate response to these efforts: within five days her systolic blood pressure had gone up to 105 mm. Hg, and by the end of August to 110/65 mm. Her weight, however, continued to fall. Small doses of insulin were given, but she complained of great nausea after the injections. Intensive salt and glandular treatment was continued until September 7. She persistently complained of abdominal discomfort, and diarrhoea proved very intractable. Stools were negative for occult blood, and bacteriological examination revealed nothing of importance; but examination on October 20 showed great increase of streptococcal content, with the presence of *B. pyocyaneus*. This is a frequent terminal finding in debilitated mental patients, and is of no particular significance.

At the beginning of November, it having been observed that Demole (1936) had made out a good case for vitamin C as an augmenter of suprarenal cortical function, a copious quantity of lemon juice was added to the diet. The result was striking; almost at once the pigmentation on the backs of the hands began to clear. But the patient was wasting fast; her weight was now only 5 st. 12 lb., and the blood pressure 105 mm. Hg. Meantime Dr. Stewart, the visiting psychiatrist, had pointed out that the pigmentary changes of the hands suggested pellagra, and on November 17 Dr. McLachlan, the dermato-

logist, confirmed this diagnosis on the following grounds: (1) atrophy of skin on back of hands and on the lower half of the face; (2) distribution of the excess of cutaneous pigment; (3) presence of gastro-enteritis and of mental symptoms; (4) history of attacks of redness of skin of face and hands. The patient had become difficult to feed, but nevertheless was still getting a good general diet. She complained of tingling and crampy pains on the soles of both feet and a feeling of great weakness. By November 20 her blood pressure had fallen to 90 mm. Hg. Blood examination showed a secondary anaemia. Mentally she was less agitated. On November 23, without any warning, she had a rigor and was afterwards in a state of semi-collapse. Recovering from this, she presented for the first time a state of acute confusional insanity. She was utterly incapable of apprehending the nature of her surroundings; she suffered from visual and auditory hallucinations, and showed extreme motor restlessness; her blood pressure had fallen to 68 mm. Hg, and there was a coarse tremor of hands and feet. On November 24 the blood pressure fell to 48 mm. Hg, and death was ushered in with delirium and urgent dyspnoea.

The post-mortem examination was conducted by Dr. Marjorie Gillespie, to whom I am indebted for the following relevant notes. The heart was small; the stomach and intestines showed patchy congestion of the wall, the condition being most marked in the caecum and ascending colon; microscopically the thyroid gland showed hyperplasia passing into hypoplasia; no gross lesion was present in the suprarenal glands. Microscopical examination of the skin by Dr. McLachlan revealed marked hyperkeratosis; excess pigment present in superficial layer of epidermis; slight irregularity and elongation of the rete cones; no atrophy in the sections examined. Collagen fibres in the subepithelial layer had undergone a small degree of hyaline change; some of the papillae showed a certain amount of oedema. No changes of pathological importance were found in the corium. A very slight infiltration of the pars papillaris had occurred. Examination of the skin coincided with the clinical observation that pigmentation was disappearing after giving vitamin C.

Discussion

The first question arising in the present case is whether the diagnosis of Addison's disease was correct or whether the patient suffered primarily from pellagra. That no lesions were found in the suprarenal glands is of no help in arriving at an answer. Disease is a process concerned with living cells, and functional derangement is not necessarily associated with anatomical changes of so gross a character that they are demonstrable even with the aid of the microscope. Especially is this the case when the diseased tissue is obtained at post-mortem examination of the human subject.

Another difficulty arises from the fact that textbook descriptions of the syndromes of suprarenal dysfunction and pellagra show a striking correspondence. In both we find very similar alimentary, nervous, and integumentary symptoms. In the present case, however, whether the true diagnosis was Addison's disease or pellagra, certain features tend to place the primary disorder at the door of the suprarenals—namely: (1) Hypotension, becoming gradually worse. (2) Favourable response to suprarenal therapy. (3) Previous history of endocrine disorder. (4) Generalized pigmentation present for many years before she came under care. (5) The patient's age; and disorder of menstruation. (6) Her death was in the nature of an acute collapse, and this has often been associated with adrenal failure. One need only mention such conditions as toxic diphtheria, malarial collapse, and surgical shock. (7) The histological appearances of the thyroid gland were those associated with hypothyroidism following upon hyperthyroidism. It is suggested that long-standing cortical adrenal hypofunction may have caused, first, a relatively overacting thyroid ("The cortex is the very antagonist of the thyroid"—Goldzieher, 1929), with a final adreno-thyroid exhaustion.

Furthermore, it is interesting to note that although the patient finally developed pellagra, (i) there was no dietetic (either protein or vitamin) deficiency of intake; (ii) on the same diet as the forty other patients in the ward she was the only one to acquire the disease; (iii) being a bed patient she was not more exposed to the sun or other trauma than any of the others; (iv) no infective condition was present. Here, therefore, is a case of hypo-adrenalism terminating in "pellagra" with no factor either of deficient nutritional intake or of infection to account for such a development.

Even if this adrenal–pellagra combination had never been previously noted, the case here described would have been of interest because of the uncertainty surrounding the aetiology of pellagra. Since, however, so many observers have called attention to this phenomenon there is evidently here a fruitful field for exploration.

RELATION BETWEEN ADDISON'S DISEASE AND PELLAGRA

Simpson (1935), when describing two cases of secondary pellagra, called attention to the connexion between Addison's disease and pellagra, and concluded that a definite relation exists. He also quoted from Harris (1919) eight cases of Addison's disease reported by Finotti and Tedeschi (1902) which had terminated as pellagra and which had shown severe post-mortem adrenal changes, as well as other cases since that time which showed pellagra supervening upon Addison's disease. Parfitt (1936) does not mention the association between Addison's disease and pellagra, but the two cases described by him as pellagra could also be described as typical clinical examples of hypo-adrenalism, and Watson (1922), commenting on fourteen cases diagnosed as pellagra at Rainhill Asylum, made the following significant observations: (1) The age grouping was between 40 and 50 years; (2) the course of the disease measured only in weeks (except in the two youngest of the series); (3) the diet of the patients had been more varied and more generous than usual.

Examining more closely this association between the symptoms of hypo-adrenalism and pellagra, it will at once be conceded that no substantial difference exists either in the alimentary or pigmentary phenomena (Rowntree, 1925; Goldzieher, 1929a, 1929b). Hypotension, however, demands careful scrutiny. Here we appear to be confronted with an exclusively Addisonian sign, yet a careful search through the literature reveals that the question of blood pressure in pellagra is scarcely ever mentioned. Stannus and Gibson (1934) reviewed all the cases diagnosed as pellagra in Britain up to 1934, but no reference is made to blood pressure. Parfitt (1936) and Simpson (1935) each describe two cases in which the blood pressure was low. *It is at least open to question whether in pellagra the arterial tension could possibly be maintained at a normal level in face of the array of debilitating symptoms.* At post-mortem examination the heart in pellagra is found to be small, just as it is in Addison's disease. Is it not probable that in the combination of low metabolism and diarrhoea (both common to Addison's disease and pellagra) there lies the common explanation of diminished tension and small size of heart?

SEX INCIDENCE

Combined figures of sex incidence in Addison's disease and pellagra show a preponderance of females over males. If, as seems at least suggestive, suprarenal hypofunction

is the common antecedent of both clinical syndromes, this is what one would expect, since fundamental glandular weaknesses are more likely to be exposed in females. Hutton and Steinberg (1936), commenting upon 176 clinic patients suffering from definite endocrinopathy, give the sex incidence as 146 female and thirty male. Stannus and Gibson (1934) give the sex incidence of 131 British cases diagnosed as pellagra from 1912 to 1931 as 111 female and twenty male—a remarkable similarity in ratio. It is difficult to imagine such a gross sex disparity arising entirely from a difference in vitamin intake. Assuming, however, a sex equality of vitamin intake and absorption, women might conceivably suffer more readily than men if certain vitamins were found to be essential elements in the maintenance of suprarenal and other endocrine functioning. Average vitamin absorption might then prove relatively insufficient because of increased endocrine demands, particularly at times of physiological stress. The large proportion of female cases of so-called pellagra occurring at the menopause is significant. In other words, one of perhaps many factors which bring to light endocrine discord and precipitate an apparent unilateral endocrinopathy may well be insufficient intake or absorption of certain vitamins, and especially so at the climacteric. Again, what appears to be a disease purely of vitamin insufficiency may, moreover, be the expression of a latent endocrine abnormality. Does any evidence exist of such an association as is here implied between vitamins and the suprarenal glands? The undernoted observations regarding vitamin C are of interest.

(i) The suprarenals are known to be particularly rich in ascorbic acid. (ii) Demole (1936), employing the test for vitamin C subnutrition devised by Harris and Ray (1935), found that the body of the Addisonian patient is impoverished of vitamin C. (iii) Wilkinson and Ashford (1936) describe three patients suffering from Addison's disease, all showing vitamin C subnutrition, the degree of subnutrition paralleling the severity of the illness. (iv) Demole (*loc cit.*) quoted the following additional points of interest: (*a*) Striking demonstrations by Thaddea have proved that resistance to experimental infection in adrenalectomized animals requires vitamin C as well as cortin. Thaddea concludes that if vitamin C does not augment production of cortin its presence is useful for the proper functioning of the suprarenal cortex, probably acting as a powerful augmenter of the action of cortin; (*b*) Szent-György has shown that vitamin C diminishes Addisonian pigmentation, and (*c*) to several Continental preparations of suprarenal extract ascorbic acid is now added. (v) Many observers have recorded diminution of pathological pigmentation with lemon juice; and the case described in this paper is yet another example. (vi) Lockwood and Hartman (1933) mention delay of onset of symptoms of B and C avitaminosis with injections of suprarenal cortical extract.

Although much work remains to be done to establish the precise relations between vitamin C and the suprarenals, the existence of some synergistic association is probable.

SECONDARY PELLAGRA

Since 1916 it has been maintained that there exists a separate clinical entity known as secondary pellagra; this has been defined by Simpson (1935) as "pellagra occurring secondary to an initial gastro-intestinal lesion or disorder, the causation of which is entirely unconnected with pellagra." It is suggested that the grounds for this clinical distinction are inadequate. One may as well describe an Addisonian patient first seen with gastro-intestinal symptoms as a "secondary Addison."

If it were proved that pellagra is merely a manifestation of hypo-adrenalism, and if the need of the suprarenals for adequate vitamin stimulation were established, a simple explanation would then suffice for the essential nature of both primary and secondary pellagra—namely, that the gastro-intestinal disorder prohibits adequate absorption of the vitamins requisite for suprarenal functioning. Such a thesis is supported by the fact that achlorhydria occurs both in hypo-adrenalism and in pellagra. Thus the aetiology as well as the symptomatology of functional hypo-adrenalism and pellagra could be brought under a common heading. In other words, the cause of pellagra could be described as hypo-adrenalism precipitated by avitaminosis.

It is hoped that the points raised in this paper may result in a closer scrutiny of all suspected cases with a view to furthering the knowledge of the hypo-adrenal–pellagra association. Certainly in cases of so-called pellagra there should be a routine investigation made of the blood pressure, of the gastric juice, of the ascorbic acid excretion, and of the endocrine as well as of the dietetic factors.

Treatment

Until the question of hypo-adrenal–pellagra relations is definitely determined the suggestion is advanced that treatment of the patient should be directed on the following lines. (1) *Diet* should be generous and varied. (2) *Vitamin therapy:* Large doses of vitamins A, B, C, and D should be included in the diet; lemon juice, egg-white, and cod-liver oil daily will probably cover all requirements. (3) *Cortin:* A commencing dose of 10 c.cm. suprarenal cortical extract, intramuscularly, daily until the condition is stabilized. (4) *Sodium chloride:* 15 grammes a day intravenously and excess salt in the diet. (5) *Acid HCl and pepsin* with all meals. (6) *Pil. Blaud.* (7) *Adrenaline:* Small subcutaneous doses frequently until stabilization.

Summary

1. The specific value of vitamin B_2 in pellagra is called in question.

2. A case is described showing "pellagra" as a terminal manifestation of hypo-adrenalism.

3. Attention is called to a probable relation existing between vitamin C and the suprarenal cortex.

4. Many of the features characteristic of functional hypo-adrenalism, pellagra, and secondary pellagra strongly indicate that these conditions have aetiological factors in common.

5. It is suggested that two essential points in the aetiology of pellagra are: (*a*) primary hypo-adrenalism; and (*b*) inadequate vitamin augmentation of adrenal functioning.

I wish to thank Dr. William Martin, medical superintendent, for permission to publish the notes of this case.

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EPITHELIAL OVERGROWTHS AND DIVERTICULA IN THE GUT OF RATS FED ON A HUMAN DIET

BY

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Although diverticulosis and diverticulitis are by no means rare conditions in human pathology, yet the aetiology is far from clear. Probably no one factor is responsible for all cases. Thus the occurrence of diverticula in rats fed on a human diet seemed to warrant systematic investigation in the hope that the findings might be not without bearing on the pathological process in man.

"A long-term experiment with rats on a human dietary" was begun at the Rowett Institute in December, 1932, and was described in 1935 (Orr, Thomson, and Garry). In this experiment two groups of Lister hooded rats, bred from the same stock, have been reared for six generations under exactly similar environmental conditions except for diet. One group received a ration closely approximating to that eaten by a working-class community in Scotland as ascertained by a dietary survey (Davidson, *et al.*, 1933); this will be referred to as the "experimental group." The other group, known as the "supplemented group," received the same diet with an additional supply of milk and green food.

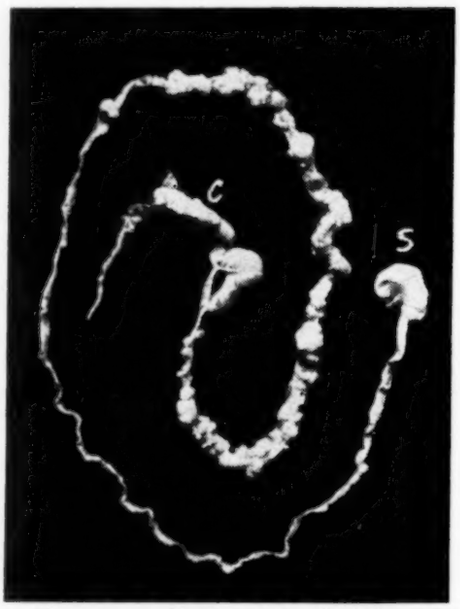

FIG. 1.—Gut of rat affected with epithelial overgrowths. S = Stomach. C = Colon.

During the course of the experiment a spontaneous epidemic with an organism of the Salmonella class broke out in the colony and caused a high death rate from gastro-enteritis, especially in the experimental group. During routine post-mortem examinations it was found that many animals showed nodular swellings or thickenings in the distal part of the small intestine and in the proximal and intermediate colon. These were found only in animals over 100 days old—that is, in adult animals.

Macroscopic Appearance

In the small intestine the lesions were mostly in the distal ileum on the anti-mesenteric border. The size varied, probably according to the age of the lesion, from that of a small pin-head to that of a cherry, and was thus sometimes three or four times the diameter of the gut. In cases of long standing the large number of individual nodules gave the gut the appearance of a string of beads (Fig. 1). In the large intestine the wall of the proximal and intermediate colon was usually thickened to form a stiff hard mass often studded with small sessile nodules. The distal part of the colon, the rectum, was free from such lesions. In the advanced stages there were adhesions to the omentum and to adjacent loops of bowel. On incision both small and large bowel lesions were found to have large loculi, in many instances filled with pus, and the growth often encroached on the gut lumen, reducing it to a small channel. Sometimes it was possible to see a small opening communicating between the loculi and the gut lumen. Thus there was a striking resemblance to the condition observed in man, both with respect to the macroscopic appearances and to the sites of the lesions.

Microscopical Appearance

Histologically the lesions were essentially the same in the small and in the large guts. The chief characteristic was extreme glandular proliferation with penetration of the muscular coats; in some cases this proliferation extended into the adherent omentum. In the majority an inflammatory reaction was present and there was often profuse round-cell infiltration. In the later stages there was abscess formation. In certain regions caseation occurred, not unlike that seen in tuberculous foci. Attempt at repair could be seen, as instanced by the presence of fibrous tissue.

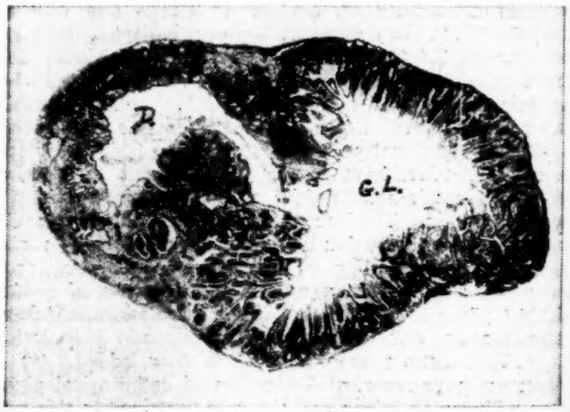

FIG. 2.—Transverse section through a nodule in the ileum GL = Gut lumen. D = Diverticulum.

Fig. 2 illustrates a transverse section through the middle of a lesion in the ileum showing direct communication with the gut lumen and consequent formation of a diverticulum. Fig. 3 represents a section of the colon in the same rat showing extreme glandular proliferation on one side of the lumen and a sessile nodule under the serous coat. Fig. 4 illustrates in one of the largest nodules the characteristic microscopical appearance; the epithelium retained its normal structure, there was no satisfactory evidence of penetration of the basement membrane, and in no case were metastases found. There was, then, no evidence for malignancy in the stages at which the lesions were examined.

Probably the natural history of a nodule is as follows. For some unknown reason the glandular epithelium proliferates and penetrates the muscular coats, tending all the

time to retain its acinous form; the acini are prone to infection, and inflammation follows often with necrosis.

A condition of somewhat similar nature was described by Leitch in 1924. He put such foreign bodies as human gall-stones, pebbles, and pitch pellets into the gall-bladder of guinea-pigs. As a result there was destruction of the lining membrane of the gall-bladder and then repair by an epithelium which in the majority of cases proliferated to such an extent that it penetrated and destroyed the wall of the gall-bladder. Nevertheless the acinous arrangement of the epithelium persisted, and cytologically

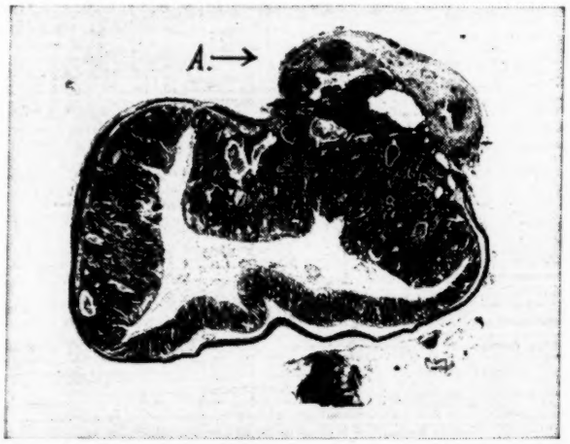

FIG. 3.—Transverse section through a lesion in the colon. A points to subserous nodule.

FIG. 4.—Section through a nodule; note the dilated acini and round-cell infiltration.

there was no real evidence for malignancy. But, since these epithelial overgrowths invaded neighbouring organs such as the liver or penetrated tissue adherent to the gall-bladder, Leitch reported that the process was malignant. However, in 1933 Burrows repeated and confirmed Leitch's results, but definitely decided that the condition induced was not malignant in the true sense of the word. The microscopical appearances illustrated by these two workers are remarkably like those described here.

Incidence of Lesions

The gut lesions were first noted in the winter of 1933–4, when the experiment had been running for about one year. Since then until the end of the experiment this year a number of rats have continuously been found to be affected. Of seventy-six animals in which either the small or the large bowel or both were concerned fifty-four were fed on the experimental diet and twenty-two on the supplemented diet. In those on the defective diet the lesions were usually more extensive. The number of rats with gut lesions in each generation on the experimental and supplemented diets have been compared with the total number of rats in each generation living beyond a hundred days, the age above which lesions have been observed. This is shown in the table.

Generation	Experimental Diet			Supplemented Diet		
	Number with lesions	Number surviving 100 days	Incidence	Number with lesions	Number surviving 100 days	Incidence
			%			%
Parental ..	2	29	6.9	2	30	6.7
F1	14	234	6.0	3	205	1.5
F2	29	129	22.5	1	94	1.1
F3	7	53	13.2	8	107	7.5
F4	2	12	16.7	8	112	7.1
Ceneral incidence	54	457	11.8	22	548	4.0

Since the environmental conditions of the two groups were identical apart from diet, and these were bred from the same stock, this higher incidence would seem at least to indicate that the nutritional level of the diet is one factor in the aetiology. No more than this can be said at present. The original dietary experiment in which this outbreak occurred has now been concluded. Further similar dietary experiments, however, are being continued, and the rats in these experiments will be examined for these nodules.

It seems, then, that we have in these rats a pathological process which macroscopically has all the appearances of diverticulosis and diverticulitis in man. Microscopically, apart from the inflammatory processes common to both, the resemblance ceases. However, since the aetiology of diverticulitis in man is obscure, since relatively little work has been done on the histopathology of this condition in man, and since the lesions here described have appeared in rats, especially in elderly rats and in rats on a human diet known to be far from perfect, it does seem worth while putting this condition on record in the hope that it may stimulate interest in the essential pathological processes of diverticulosis and diverticulitis in man. Moreover, we have been unable to find any reference in the literature to this condition in rats.

Summary

In rats fed on a low-grade human diet an unusual kind of epithelial proliferation was observed in the small and large guts. This resulted in multiple diverticula, which penetrated the entire thickness of the bowel wall. Macroscopically there was a striking resemblance to diverticulitis as seen in man, but microscopically we were forced to regard this change as an acquired heterotopia. Throughout the period of observation no evidence for malignancy was detected.

The authors are deeply indebted to Professor D. F. Cappell, University of St. Andrews, for advice in interpretation of the pathological changes, and to Dr. J. T. Irving, Rowett Institute, for assistance in presenting the data.

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HYPOGLYCAEMIC THERAPY IN THE PSYCHOSES

BY

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In 1935 Manfred Sakel of Vienna published a book describing his new insulin shock treatment of schizophrenia. Since then his method has been used in many parts of the world, and in this country reports have been published by Russell (1937), Larkin (1937), and James and co-workers (1937). Up to now I have administered this therapy to sixteen female psychotics, the majority of whom were cases of schizophrenia. Two of these cases are described later, as they present features that have not been fully recorded in the English literature. The first case showed status epilepticus in the course of treatment, and the other laryngeal spasm on two occasions. It happens that in the first case the series of convulsions was apparently responsible for a remarkable improvement in the mental condition, but it would be premature to draw conclusions from this, and my purpose is rather to point out certain of the dangers associated with this treatment. A complication which demands no description is the lessened resistance to infection that is sometimes seen in these patients. In my series there have been two cases of pyelitis, which quickly responded to mandelic acid.

Details of the technique will not be given here as they have been well presented in the recent article by James and his co-workers. Essentially the treatment consists in the daily injection of increasing amounts of insulin, until a dose is reached which causes hypoglycaemic coma. On succeeding days this dose is maintained until mental improvement occurs or there is a lack of response to the treatment. In practice, however, few patients receive the routine treatment. The variations are mainly concerned with the criteria for interruption of the hypoglycaemia, and constitute the most difficult part of the technique.

Case I

A woman aged 32 years was admitted as a temporary patient on May 28, 1935, with a history of mental disorder of three weeks' duration. She was in a state of acute confusion, being completely disorientated, and was restless, insomnic, resistive, and impulsive, and had aural hallucinations. It was stated that she had suddenly developed this condition on the night of May 5. After about four weeks in hospital she showed some clearing of consciousness. However, a silly fatuous element was then noticed in her speech and appearance. She began to have grotesque delusions of little depth and of a grandiose nature, and the affective reaction was observed to be shallow and did not co-ordinate with her expressed thoughts. A diagnosis of paranoid schizophrenia was made. On May 7, 1936, she was certified after two extensions of her temporary status.

The hypoglycaemic treatment was begun on February 13, 1937, with the intramuscular injection of 24 units of insulin. The insulin used was Messrs. Boots' quadruple strength—that is, 80 units per c.cm. The dose was increased by 8 units daily until on February 18 with 64 units she became comatose. This dose was continued daily, except on Sundays, until February 23, when she developed status epilepticus. At 7.25 a.m. on that day she had received 64 units of insulin. At 9 o'clock she was drowsy, and at 9.15 sweats appeared on the face and chest. At 10.20 she became comatose, and an oesophageal tube was passed by the nasal route. Further progress in the coma was uneventful, and as usual her degree of unconsciousness was light—that is, she was insensible to painful stimuli, the conjunctival reflex was absent, the corneal reflex on both sides and the knee and ankle reflexes could just be elicited, while the plantar responses were bilaterally extensor. She was fed at 12.10 p.m. with 150 grammes of glucose in half a pint of water, and had regained normal consciousness by 12.35. At 12.40 she had a typical major epileptic fit with well-marked tonic and clonic stages. By 12.44 she had recovered full consciousness and appeared none the worse. At 12.50 a second major convulsion occurred. From this she recovered in four minutes, and as she appeared well no intravenous glucose was given. She was occupied until 3.10, when she had a third major fit, from which she did not regain consciousness. Identical convulsions occurred at twenty-minute intervals until 5.40, making a total of ten convulsions that day. Treatment was as follows:

3.15 p.m.—30 c.cm. of 25 per cent. glucose in saline given intravenously.

3.20 p.m.—Glucose 5 ounces, calcium lactate 20 grains, and prominal 1 grain in half a pint of water, given per oesophageal tube.

3.40 p.m.—Soap-and-water enema given with fairly good result.

3.50 p.m.—Adrenaline 1/2 c.cm. injected subcutaneously.

4.15 p.m.—Stomach washed out with normal saline solution, and ammonium chloride 40 grains left in the stomach.

4.20 p.m.—Lumbar puncture was performed and 20 c.cm. of cerebro-spinal fluid removed. It was under greatly increased pressure.

5.20 p.m.—1 c.cm. of 20 per cent. luminal solution injected intramuscularly.

6.20 p.m.—Lumbar puncture was repeated and 20 c.cm. of fluid removed. The pressure was less this time, although still raised.

There were no further fits after 5.40 p.m., and at 9 p.m. the coma lightened and she became restless. At that time morphine sulphate 1/4 grain was injected subcutaneously. At no period during the day did the cardiac condition give anxiety. The need for constant medical attention during the hypoglycaemic treatment is shown by the fact that her bedside was hardly quitted the whole of that day.

All the next day the patient was drowsy, but on the morning of February 25 she was found to be pleasant and coherent in speech. As recovery might be hindered by a psychological investigation no questions were put to her, but from her spontaneous utterances it was obvious that she had lost her psychotic signs and symptoms. She was no longer deluded or hallucinated, and was coherent, relevant, rational, and pleasant in conversation. In her affective, conative, and cognitive responses she appeared normal. On April 5 she was discharged on trial. On the 26th she reported back and appeared so well that she was discharged altogether.

On June 9 she reported again for a more complete mental investigation, and showed entire disappearance of schizophrenic symptoms, with normal affective relationship and ability to return to her normal sphere of work. It was felt, however, that she did not fully appreciate the serious nature of her illness, and so her case had best be recorded as an incomplete remission according to the standards of Müller (1936).

Discussion

Typical major epileptic fits are common in this treatment, and other convulsions may occur that show a preponderance of tonic or clonic stages but are still to be looked on as major epileptic fits. These fits may appear at any stage in the hypoglycaemia, even when this has apparently been relieved by glucose. The latter occurrence may be due to the hydration of an already irritable cortex.

The epileptic fit is not now regarded as a catastrophe, and it does not depend on the blood-sugar level. It is of interest that Meduna (1936), by the use of various con-

vulsive agents, especially camphor and metrazol (cardiazol), has claimed to have had good results in the treatment of schizophrenia. He believes that the likelihood of cure with his treatment is proportional to the liability to convulsions. It is reasonable to suppose that in the case described above a similar therapeutic result would have been achieved by the use of cardiazol, and my experience in the use of this drug shows that it is simpler and safer than the hypoglycaemic treatment.*

For status epilepticus the treatment is the administration of glucose intravenously and by the oesophageal tube, along with repeated lumbar puncture. A soap-and-water enema and the injection of 1/4 grain of morphine may also be indicated.

It may be added that in the case described the personal and family histories contained no reference to epilepsy or other nervous or mental disease. It was the patient's first psychotic attack, there were no apparent exciting factors, and there had been no evidence of remissions during her stay in hospital. It remains to be seen how long the present mental improvement will last.

Case II

A woman aged 27 years was admitted as a temporary patient on March 5, 1935, and was certified on March 10, 1936. Throughout her stay she has shown mutism and apathy, but without katatonic features; hence benign stupor appeared to be the most appropriate diagnosis.

Hypoglycaemic treatment was begun on April 7, 1937, with a dose of 24 units of insulin. By April 23 she was having 104 units, and on that day, three hours after the injection and while still awake, she suddenly showed inspiratory stridor, and at once became cyanosed and unconscious. The pulse was 40 beats per minute and was intermittent. She was immediately given 1 c.cm. of coramine intramuscularly, 1 c.cm. of adrenaline intramuscularly, and 5 c.cm. of 25 per cent. glucose in saline intravenously. By this time she had stopped breathing, was quite blue, and was pulseless. Artificial respiration was also begun and simultaneously she received 150 grammes of glucose per the oesophageal tube. She recovered almost at once, and gave no further anxiety that day.

The treatment was begun again after two days' rest, using smaller doses of insulin, and on May 5 she was receiving 64 units. On that day she again showed laryngeal spasm three and three-quarter hours after the injection, and almost at once became pulseless, cyanosed, and unconscious. She was given the same treatment as before, and quickly recovered. The treatment was permanently discontinued after this, as it was felt to be unwise to risk a third occurrence of the complication. She was said to have suffered much from bronchitis in childhood, and this may be associated with her laryngeal susceptibility.

Little more need be said about this complication. It is not very common, it is easily and quickly recognized, and it responds quickly to the appropriate treatment. So soon as the first stridor is noticed treatment by adrenaline, repeated coramine, artificial respiration, and the administration of glucose should be instituted. The intravenous route will probably be useless because of collapse of the veins. As recommended by James, a cylinder of 95 per cent. oxygen and 5 per cent. carbon dioxide would be an advantage, and this has been added to the equipment of my insulin ward.

Summary

Two cases are described which show at the same time the dangers and the potentialities of Sakel's hypoglycaemic treatment in the psychoses. The first case was that of a female psychotic who had suffered from a schizophrenic insanity for one and three-quarter years. After developing status epilepticus as a result of the insulin treatment she showed such improvement mentally that she was discharged.

The second case illustrates the occurrence of laryngeal spasm during the insulin treatment.

The treatment of both these complications is described, and the necessity for constant medical attention is emphasized.

I am indebted to Dr. J. Harvey Cuthbert, medical superintendent of West Ham Mental Hospital, for permission to report these cases. My warmest thanks are due to Sister Mackenzie and the staff of Ward 6, West Ham Mental Hospital, for their skilful nursing and continued enthusiasm. For a translation of Meduna's paper I am indebted to Knoll Ltd. of Welbeck Street.

* It should be stressed that cardiazol only produces convulsions when used in very large doses, and according to a special technique. In the doses used ordinarily it acts only as a respiratory and circulatory stimulant.

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Clinical Memoranda

Marked Febrile Erythematosis During Treatment with Mandelic Acid

Since Rosenheim's articles dealing with the treatment of urinary infection by means of mandelic acid have appeared in medical papers many thousands of such cases have been successfully treated by this drug and very few complications have occurred. It is possible, however, that with its use some practitioners may have noted results similar to those experienced recently in a patient of mine who was undergoing mandelic acid medication, and the following case record may therefore prove of interest.

CASE REPORT

A woman aged 42, who gave a long history of cystocele and associated urinary symptoms, consulted me on account of urgent frequency of micturition. A bacteriological examination of her urine showed *Bacillus coli communis* and pus cells to be present in considerable quantities.

Treatment was begun with large doses of alkalis, and when after a week this afforded no relief cystopurin, two tablets four-hourly, was substituted. This likewise failed to relieve her discomfort, and the bacteriological findings in the urine remained as before. As no albumin had been found in the urine the patient was considered to be a suitable case for mandelic acid therapy, and this was instituted forthwith, the urinary *p*H being kept at 5.3 by the coincident administration of ammonium chloride by mouth. Methyl-red was used as the indicator. This treatment was started on February 10, and was continued uneventfully until February 24, when the patient complained of a generalized pruritus, although there was no sign of a rash. As at this time the bacteriological findings were still positive the treatment was continued. On February 27 the suboccipital and submaxillary glands showed some enlargement and were slightly tender. On March 3, besides the pruritus and lymphadenitis, the patient complained of a persistent acid taste in the mouth resembling that of the medicine. On March 6 the first negative bacteriological report was obtained, but the mixture was continued.

On March 10, in addition to the previous symptoms, there was soreness of the gums (the patient was edentulous), and these were found to be injected and swollen. The mixture was then stopped, and large quantities of alkaline fluids and glucose were substituted. On March 14 the patient had a marked nocturnal sweat, and on the morning of the 15th her temperature was found to be 102.2° F. and there were small red papules on her chin, neck, shoulders, and the front of her chest. By

this time the itching had become intolerable, and by the evening her temperature was 103.6° F. Two tablets of veramon were given, but afforded no relief. On the following day her temperature was 105° F. at 8 a.m., and she presented a dismal spectacle. Her face and body were covered with a punctate erythema, the rash being most marked on the face and on the extensor aspects of the limbs. The oral mucous membrane was swollen and injected, the eyelids were practically closed with oedema, and what little of the conjunctivae could be seen was almost brick-red in colour.

Some symptomatic relief was obtained at this stage by a sodium bicarbonate bath followed by the application of lotio calaminae co., but the effects were only temporary, and in one hour the patient was suffering as badly as she had been before the bath was taken. Fifteen minims of adrenaline hydrochloride, 1 in 1,000, were then injected subcutaneously and 2 c.cm. of colloidal calcium (Glaxo) were given intramuscularly, and within half an hour marked relief was experienced. When the patient was seen the same evening (eight hours later) the temperature had fallen to 102.2° F., and she was more comfortable than she had been for several days. The following morning the temperature was still 102° F., and a further 2 c.cm. of calcium was given intramuscularly. The rash was then beginning to fade and the oedema was diminishing.

On March 18 her temperature was 100° F., and she expressed a desire for solid food. A further 2 c.cm. of calcium was given, and this dose was repeated daily for the next two days, by which time the temperature was normal and the oedema had almost disappeared, although some mild irritation persisted for a while and small dusky petechiae were present in the skin at the sites where the rash had been most marked.

Hadleigh, Essex. W. L. JAMES.

Meningococcal Meningitis Complicated by Streptococcus haemolyticus Infection: Recovery

The following case seems of sufficient interest to warrant being placed on record.

A youth aged 17 was admitted to the Miller General Hospital on Tuesday, January 19. His mother gave the following story. On the previous Friday morning he had gone to work having a sore throat; while at work he felt dazed and had collapsed, and was brought home by friends. He was then complaining of headache, backache, and feeling feverish, and it was thought that he had influenza. By the following Sunday, however, the headache had become intense, and the parents noticed that his head was somewhat retracted.

On admission the patient, a youth of splendid physique, had a temperature of 100.6° F.; the pulse rate was 88 and the respiration rate 28. He was lying on his side with the knees drawn up, and showed some degree of head retraction. There was a pronounced palatal weakness, with nasal regurgitation, but no other evidence of cranial nerve damage. Kernig's sign was positive. In addition he had a herpetic eruption on the back of the neck, and showed a well-marked "tache cérébrale." On lumbar puncture the fluid first obtained was almost pure pus, and under tension. Microscopical examination gave a polymorphonuclear cell count of 61,000; large numbers of meningococci were seen (shown after culture to be Type I).

The patient was treated by daily lumbar puncture and the administration of large amounts of Parke Davis's antitoxin by the intravenous and intrathecal routes. Between January 19 and 26 some 16-80 c.cm. of cerebro-spinal fluid were drained daily and 20-30 c.cm. of antitoxin given intrathecally. Over the same period he also received daily 120 c.cm. of antitoxin intravenously.

On the day following admission he became more delirious and was incontinent of urine; the pulse rate rose to 120—this marked tachycardia persisting until the end of the illness. After this there was a slight but progressive clinical improvement. By January 26 the cell count had fallen to 1,660 and the fluid withdrawn that day proved sterile on culture. Intravenous antitoxin was discontinued after January 29, but lumbar puncture and intrathecal injections of antitoxin were continued with a break every third day. A serum rash appeared on January 27 and lasted three days. There was a recrudescence of his symptoms and signs on January 30 and again on February 3, and a sparse growth of meningococci was obtained from the cerebro-spinal fluid. After February 3 his clinical improvement was maintained for a week. During that period he was having lumbar puncture every other day and antitoxin was being given intrathecally at the same time. By February 9 the cell count had fallen to 600 and the fluid had given two negative cultures. The temperature had then been normal for three days. Since admission he had received a total of 1,650 c.cm. of meningococcus antitoxin (550,000 units).

On February 10 a "routine" lumbar puncture was performed in the morning and 55 c.cm. of fluid were withdrawn. The same day the patient had vomited spontaneously and his head was again retracted; in the evening he had become suddenly unconscious, with fixed eyes, contracted pupils, and stertorous respiration. His temperature was 103° F. and the pulse rate 130. It was thought that these phenomena were associated with a rise in intraventricular pressure due to a block between the third and fourth ventricles. Lumbar puncture was performed for a second time that day, and the removal of 16 c.cm. of fluid was followed by a gradual return of consciousness. Next morning the laboratory report on both specimens of fluid withdrawn the previous day showed the presence of streptococci in the film and a rise in the cell count to 1,070. A culture of these specimens gave a profuse growth of *Streptococcus haemolyticus*. A throat swab taken the same day also showed on culture a profuse growth of *S. haemolyticus*. Concentrated streptococcus antitoxin (Burroughs Wellcome) was given on February 11 and 12 (14 c.cm. intrathecally and 70 c.cm. intravenously each day). At the same time 20 c.cm. of prontosil were administered intramuscularly. During these two days the patient's temperature was raised, he was drowsy, and his head was again retracted. On the 12th the cell count had risen to 8,500, but the fluid taken that day was sterile on culture, and by the same evening there was a definite clinical improvement in his condition.

Only a few cubic centimetres were obtained from lumbar puncture between February 12 and 16, and on the 16th lumbar puncture was "dry." It was thought that a local cord-block had developed, probably due to a haematoma. During these days the patient's condition again deteriorated and there was an exacerbation of meningitic signs; the disks showed very slight papilloedema. On February 18 cisternal puncture was performed by Dr. Harold Pritchard, and 30 c.cm. of clear fluid under pressure were obtained. This was sterile on culture. Again, on February 24, there was a sudden marked deterioration in the patient's condition; he complained of severe frontal headache and became drowsy. The pulse rate remained between 120 and 130, but the pulse became very feeble. Cisternal puncture was repeated the next day and 32 c.cm. of clear fluid at a pressure of 250 mm. of water were removed; following this there was a gradual improvement in the pulse volume and in the patient's condition generally. Cisternal puncture was performed on March 1 for the last time, and at the same time a successful lumbar puncture was made.

The pulse rate now fell slowly to between 80 and 90 and the patient had an uneventful convalescence. There was considerable wasting, and although at first there was marked impairment of memory for recent events, yet by the time of his discharge on April 5 his memory had apparently become normal and there was no evidence of any gross lasting damage to body or intellect.

During convalescence swabs taken from the throat and post-nasal spaces respectively showed the continued presence of haemolytic streptococci and of meningococci.

I am indebted to Dr. Maurice Davidson for permission to publish this case, which was under his care; also to Dr. Wm. Smith for permission to publish the pathological reports.

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Reviews

THE FUNDUS OCULI

Internal Diseases of the Eye and Atlas of Ophthalmoscopy. By Manuel Uribe Troncoso, M.D. (Pp. 530; 239 figures. 15 dollars.) Philadelphia: F. A. Davis Co. 1937.

English works on the fundus are not numerous. The classical atlas by Adams Frost published in 1896 is still the outstanding contribution to the subject, though it "dates" nowadays and is in any case unobtainable. Wilmer's atlas, published in 1934 in the United States, was a brave, but not altogether successful, attempt to replace it. Of the lesser monographs none have the width or scope which mark the permanent contribution. It is therefore a pleasure to welcome Troncoso's *Internal Diseases of the Eye and Atlas of Ophthalmoscopy*. The title of the book is not quite happy. A textbook on fundus lesions the book certainly is, but fundus lesions and internal diseases of the eye are not synonymous. Iritis, cyclitis, and cataract deserve just as much the designation of internal disease as a fundus lesion, and these are not subjects discussed in this book.

As a survey of fundus lesions the book is a valuable exposition of the modern outlook on the subject. The author has been radical in his rejection of terms and points of view which have ceased to have any meaning; that this is no small praise will be obvious to anyone who turns over the relevant pages in even the most modern of ophthalmic textbooks. He has discarded the misleading term of retinitis given to that large group of retinal lesions where there is no evidence of an inflammatory basis, and uses instead the more innocuous name of retinosis, just as choroidosis replaces a good many conditions generally named choroiditis. It is, however, in other things than the nomenclature, important though that is, that the author's modernity is apparent. Gone is that approach to fundus lesions which described the clinical picture in hybrid terms compounded of doubtful anatomy, fallacious pathology, and linguistic barbarisms. "Macular degeneration" and "pigmentary disturbances" do not loom large in his attempt to describe and explain central fundus lesions. A thorough acquaintance with the literature has given the author the opportunity, of which he has made full use, to reduce the chaos of conflicting and overlapping nomenclature to a few underlying general principles, so that the different chapters do not degenerate into a catalogue of names. In a certain ophthalmic encyclopaedia twenty-six varieties of choroiditis are described; that the majority of the names ever had any meaning to anyone, even to those who introduced them, is more than doubtful. It is good to find a comprehensive book which has broken away from the tradition that it takes eternity to remove an exploded fallacy from textbooks. It must not be assumed that Dr. Troncoso has written a revolutionary tract on fundus lesions. What he has done is to put in textbook form the actual practice of the expert ophthalmoscopist. His book is modern in the best sense of the word. He has had the courage to try the new and to hold fast to what is good in the old.

That a book of this kind should have flaws is regrettable but inevitable, and it is in the hope that they will be removed in an early new edition that these flaws are stressed. In an exposition of modern ophthalmology to speak of disturbances of menstruation as a cause of papillitis is an act of ancestral piety; the mention of chlorosis in the same context is an anachronism. "Otogenous optic neuritis" is not a particularly clear picture. The use of diaphoretics and cathartics as a treatment of optic neuritis puts the wrong emphasis upon what should be a part of general treatment. Here and there teaching departs from orthodoxy, as when acute papillitis is given as a manifestation of disseminated sclerosis. Elsewhere lack of proportion is apparent, as in the pages giving uncalled-for elementary exposition of general disturbances in pituitary diseases and a very full account of various pituitary tumours. An equal lack of balance is seen in the chapter devoted to nephritis. The statement that the histological findings in diabetic retinitis are similar to those in renal retinitis is unwarranted. The grouping together of Tay-Sachs disease with cerebro-macular degeneration, though a common view, is surely no longer tenable. On the histology of disciform degeneration of the macula no mention is made of the strong evidence that the underlying cause is not vascular, but thickening of the membrane of Bruch. A second edition might profitably be revised on many such matters of detail, and a careful reading of the proofs would not be out of order. What is a more serious defect in a book of this kind is the lack of references. This should be remedied. Such few references as are given are distinctly invidious.

TREATMENT OF DELINQUENCY

New Light on Delinquency and its Treatment. Results of a Research Conducted for the Institute of Human Relations, Yale University. By William Healy, M.D., and Augusta F. Bronner, Ph.D. (Pp. 226. 9s. net.) New Haven: Yale University Press. London: H. Milford, Oxford University Press. 1936.

In undertaking yet another study of delinquency Dr. William Healy and Dr. Augusta Bronner, from their long experience, approached delinquency as one form of human behaviour and not merely as a kind of behaviour which injures society. They concentrated on the family life of delinquents in the United States and compared a large number of delinquent children with an equal number of non-delinquent children in the same families. They have striven throughout to discover what a particular delinquency means to the delinquent in terms of the expression of his desires or urges. From this point of view they have made practical suggestions for treatment. Only those children were selected who were recognizable as potentially serious offenders or who had been repeatedly delinquent. The authors took one girl to three boys, the ordinary ratio of juvenile court cases, and ruled out the definitely feeble-minded. They gave preference to families with a comparable non-delinquent sibling, especially where the delinquent was one of twins.

The material was taken from several cities and tested and examined with great thoroughness. The authors discovered that delinquency was very largely determined by the subjective life of the delinquent rather than his environment, and that the delinquent is a child with different emotional experiences and attitudes from those of others. His desires for satisfactory human relations, for recognition as a personality, for social adequacy, independence, accomplishment, experience, and possessions have somehow been thwarted. He therefore tries to escape from the unpleasant situation, to achieve compensatory satisfactions such as adventure and notoriety to bolster up the ego, to take revenge and to satisfy instinctual urges, and, last but not least, to achieve punishment in response to a conscious or unconscious sense of guilt. The ideas of delinquency are always

present to every child, and if they fit the special needs of the individual he becomes delinquent.

Treatment based on the discoveries here outlined was very encouraging, and the authors' most important contribution to the subject is a detailed treatment programme, the central idea of which is to provide satisfactory relationships and outlets. Naturally they plead for a reorganization of the whole social environment. It is not surprising that delinquency is a problem in a country where it is so persistently and emphatically represented, in the newspapers and the picture theatres, as an attractive mode of behaviour.

OPERATIVE SURGERY

Operative Surgery. By Alexander Miles, M.D., LL.D., F.R.C.S.Ed., and D. P. D. Wilkie, M.D., F.R.C.S.Ed. and Eng. Second edition. (Pp. 631; 329 figures. 21s. net.) London: H. Milford, Oxford University Press. 1936.

We welcome a second edition of this manual by Mr. Alexander Miles and Sir David Wilkie. The first edition, which came to light in 1933, succeeded the companion volume to the well-known textbook of general surgery by the late Alexis Thomson and Mr. Alexander Miles. Like its predecessor, the work retains what was useful and attractive in the original companion volume, and omits much that was of academic interest only—for example, such operations as have been designated dissecting-room exercises; it also brings up to date the account of surgical practice. Gynaecology is not dealt with. The present volume gives an account of the operations which are being practised to-day by the Edinburgh school of surgery, and both the authors and the publishers are to be congratulated on the clarity of the descriptions and the illustrations, and on the format of the work. In addition to the principal authors coadjutors number seventeen, and are members of the staff either of the Edinburgh Royal Infirmary or of the Edinburgh municipal hospitals.

This is essentially a textbook of operative surgery for the undergraduate and the young surgeon, and as such is one of the best we have read. We should like to have seen the Billroth I procedure shown in Figure 237 as an operation for gastric ulcer, and we think Figure 163 might have been omitted, since the trans-sphenoidal operation for pituitary tumour is only of historical interest. The same might be said about Figure 268, which depicts the use of the Murphy button. These are minor criticisms, however, and the new edition should increase the appeal of this already popular work among medical students and their teachers.

CARDIOVASCULAR DISEASE

Die Herz- und Gefässkrankheiten. By Professor Walter Frey. (Pp. 342; 67 figures. RM. 29; geb., RM. 32.60.) Berlin: J. Springer. 1936.

This work deals with the subject of disease of the circulatory system from an unusual point of view, and the author aims at treating it on a very wide basis. The book is divided into five sections, the first of which is introductory and indicates the general plan. The organs of mesodermal and mesenchymal origin are considered as a pathological unit, and this theme runs through the volume. In later sections the morbid processes which affect tissues with this embryological origin are described. To begin with there is a full description of the development of the heart and congenital defects, but the various types rather lack definition and the diagrams are somewhat out of date. Then follows a review of the changes produced in the heart throughout life by growth and age, including observations on the relation of this organ to the shape and size of the body: an interesting section and a novel survey. The next part is devoted to indurative lesions—what the author calls the scleroses—such as aortic, valvular, and coronary sclerosis and peripheral arteriosclerosis. Under the second heading the whole subject of heart failure is considered: atheroma of the aorta and its treatment receives rather an undue amount of space. The section that follows deals with lesions of bacterial and toxic origin, and discusses myocarditis, endocarditis, and pericarditis, as well as arteritis and phlebitis. Finally there is a section on endocrine disorders and neurosis.

By reason of its peculiar approach to the subject the book is hard to read, and there is in places undue emphasis on matters which are of no great clinical importance. The chief value of the work lies in the breadth of view displayed and the stimulating generalizations. A cardiologist will find here much out-of-the-way information, but others may tend to be confused. The bibliographies are not tabulated in the usual way, nor are the references conventionally given, and the index is scanty. There are minor mistakes in English and French. Only half a dozen electrocardiographs are reproduced, and these are small and indistinct.

NOSE AND THROAT DISEASES

Diseases of the Nose and Throat. A Textbook for Students and Practitioners. By Sir StClair Thomson, M.D., F.R.C.P., F.R.C.S., LL.D., and V. E. Negus, M.S., F.R.C.S. Fourth edition. (Pp. 976; 386 figures, 29 plates. 45s. net.) London: Cassell and Co. 1937.

After the lapse of a decade Sir StClair Thomson has produced a fourth edition of his well-known textbook on diseases of the nose and throat, this time with the assistance of Mr. V. E. Negus. The author states in his preface that more changes have been made than in the second or third editions, but the book appeared to have reached its apogee in the third edition, and with the exception of a new and fuller description of endoscopy the changes mostly appear as variations in matters of detail rather than in essentials.

The principal alteration consists in the complete rewriting of the sections relating to endoscopy, and along with this a number of excellent fresh illustrations are included. This portion indicates very well what can be accomplished by endoscopy in the diagnosis and treatment of disease besides the extraction of foreign bodies. Tumours of the nose and accessory sinuses are now grouped in a chapter together. Although the achievements of Holmgren and Öhngren in Stockholm and of Gordon New at the Mayo Clinic are mentioned, a true perspective of the revolution which these surgeons have effected in the treatment of cancer of the upper jaw and ethmoid is hardly conveyed. Other short sections are devoted to agranulocytosis and to the Plummer-Vinson syndrome, which was first described by Donald Paterson and Brown Kelly. The difficult question of the syndromes arising from paralysis of the last four cranial nerves is clarified by adopting the classification advocated by Burger.

As might be expected, the discussion of tonsils has been revised, though no claim is made to solve the problem, and some observations on the technique of their removal are also new. The authors now advocate the use of the Davis gag, a complicated apparatus which has become fashionable in recent years. The drawings illustrate it upside down, according to the manner in which it is commonly used. Six pages are still devoted to a descrip-

tion of the properties and use of cocaine, whilst pantocaine, which has almost entirely replaced it on the Continent, receives one line. It must be noted with regret also that some of the more depressing woodcuts and photographs are still retained, and that the names of a number of the authors quoted are either wrongly spelt or are in some way inaccurate. This may not be of great importance, but it shows a slight decline in literary finish. These remarks, however, only serve to indicate the difficulties the authors have had to face in combining the old and the new, and they have succeeded well in their long and arduous task, which now completed will maintain the well-established position of the book for many years to come.

Notes on Books

Sir HENRY M. W. GRAY has brought together in small compass his views on *The Colon as a Health Regulator* (Macmillan, 10s. 6d.). The author sees in developmental anomalies of the colon, incomplete migration and fixation in embryonic life, the cause of most of the symptoms presented by patients suffering from what is known as "the chronic abdomen," and the basis for many extra-abdominal conditions as widely separated as epilepsy and chronic arthritis. For their removal he advocates a general abdominal overhaul, what he describes as a spring-cleaning with division of adhesions, unravelling of kinks, and fixation of some portions of the colon such as the caecum and sigmoid. The details of the operative procedure are given. After a fairly prolonged abdominal operation the patients get out of bed on the fourth or fifth day, and are often able to return to sedentary business at the end of a month. There were four deaths in a series of 205 cases; this does not accord with the statement on the same page that "complete failure to relieve has to be recorded occasionally, possibly in 1 per cent. of cases." Other claims, unsupported by figures, may be even wider of the mark.

Medical Morals and Manners, by Dr. H. A. ROYSTER, is a collection of papers and addresses written and published during the last forty years (London: H. Milford, 11s. 6d.). The author is an American surgeon with a deep interest in literature, social relations, and athletics. The thirty chapters of the book are grouped in five divisions, of which the largest is devoted to surgery; three of the remainder deal with the general aspects of medical practice, with athletics and physical fitness, and with hospital staffs, while the concluding pages comprise a miscellany, including "James Marion Sims" and "The Medical Phrases of Victor Hugo." Dr. Royster is a strong upholder of culture in medicine. "Will it be considered very old-fashioned if we should suggest that the neglect of the languages, and particularly the banishment of Greek, may be responsible for our loose thinking and our lack of scholarship?" He deplores modern inaccuracy. "We know a great deal; but do we know anything very well?" One of the most interesting chapters is "From My Father's Notebook," which includes case reports of difficult obstetric experiences in the eighteen-seventies. Also very entertaining and instructive are the short biographies of other old-time country practitioners.

A Manual of Operating Room Procedures is a loose-leaf book written by ALMIRA W. HOPPE and LUCILE M. HALVERSON, assisted by the operating-room nursing staff of the University of Minnesota Hospitals (London: H. Milford, 9s.). Dr. O. W. Wangensteen, in a foreword, writes that "Order is Heaven's first law," and that this is also the first mandate of the operating room. It appears to be the theme also of this handbook, which is a guide to the efficient conduct of surgical operations regarded from the standpoint of the theatre nursing staff. The book includes instruction in the preparation for and conduct of operations, and, to add interest to what otherwise might be rather dull lists of the instruments required for particular operations, the purpose of each operation and a brief outline of the steps of its performance are given. We suggest that this interest might be further enhanced in future editions by the inclusion of line drawings showing the position of the patient and other points of special interest. All branches of surgery are considered in this work, which comprises 234 loose pages, an index, and some additional blank pages for making notes such as the requirements for individual variations in technique and the use of specially designed instruments used by certain surgeons. We note that craniotomy and ventricular tap come under general surgery. This should prove a valuable handbook for theatre nursing staffs, and the conception and arrangement are excellent.

Preparations and Appliances

INTERCEPTOR AND REGULATOR FOR CONTINUOUS INTRAVENOUS SALINE

Mr. HAMILTON BAILEY, F.R.C.S., writes:

The piece of apparatus illustrated in the accompanying figure is a valuable addition to the armamentarium for administering continuous intravenous saline. The rate of flow can be regulated with great precision. The large glass bulb

obviates the drip becoming obscured by an accumulation of solution—a constant source of trouble in other patterns of interceptors. The apparatus is made by the Genito-Urinary Manufacturing Co., Ltd., London.

"SEEDLAX"

"Seedlax" is composed chiefly of flax seed and wheat germ. It therefore contains substances which act as an intestinal lubricant and in addition contains vitamins—in particular, members of the vitamin B complex. The purpose of the preparation is to act as a mild laxative in cases of chronic constipation; it also provides a supply of the vitamin B complex, a lack of which is suspected of being a contributory cause of atonia of the bowel.

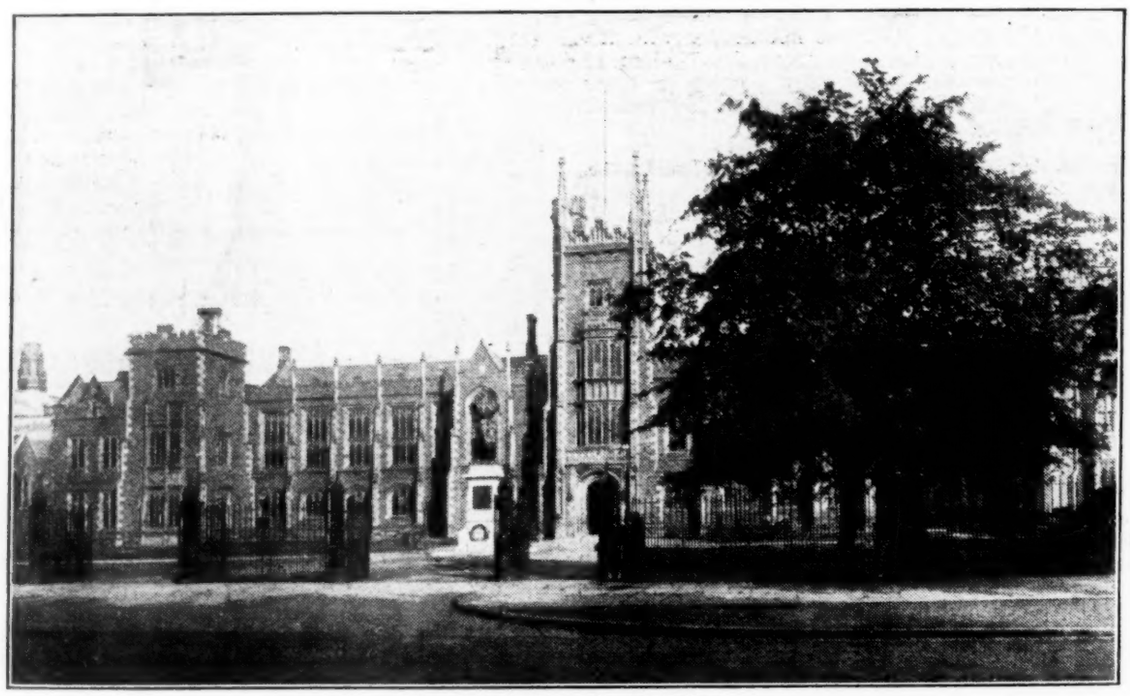
ONE HUNDRED AND FIFTH ANNUAL MEETING
OF THE

BRITISH MEDICAL ASSOCIATION
BELFAST, 1937

THE one hundred and fifth Annual Meeting of the British Medical Association will be held in Belfast next summer, under the Presidency of Professor R. J. Johnstone, B.A., M.B., F.R.C.S., F.C.O.G., M.P., consulting surgeon, Royal Maternity Hospital, gynaecologist to the Royal Victoria Hospital, and professor of gynaecology, Queen's University, Belfast; he will deliver his address to the Association on the evening of Tuesday, July 20. The Sectional Meetings for scientific and clinical work will be held on Wednesday, Thursday, and Friday, July 21, 22, and 23, the morning sessions being given up to discussions and the reading of papers. The Annual Representative Meeting for the transaction of medico-political business will begin on the previous Friday, July 16. The full list of officers of the seventeen Scientific Sections, the provisional programme and time-table, information about accommodation, and other details of the arrangements for the Annual Meeting were given in the *Supplement* of May 15. We publish below the third of a series of articles on Belfast and its medical and scientific institutions. The first article appeared on January 30 (p. 233) and the second on April 10 (p. 766).

THE QUEEN'S UNIVERSITY OF BELFAST AND BELFAST HOSPITALS

The Queen's University of Belfast is the centre of academic life in Northern Ireland. Its record of progress as it approaches its centenary is a reflex of the intellectual life and outlook of the community and of its interest in the arts and sciences. It is an interesting commentary on the relative importance of the towns of Ulster ninety years ago that serious consideration should have been given to the claims of Derry and Armagh as the home of the projected seat of learning. It is a tribute to the discriminating foresight of that generation that the College which was later to develop into the University was established in what was destined to be the metropolis of Northern Ireland and the centre of its industrial activity.

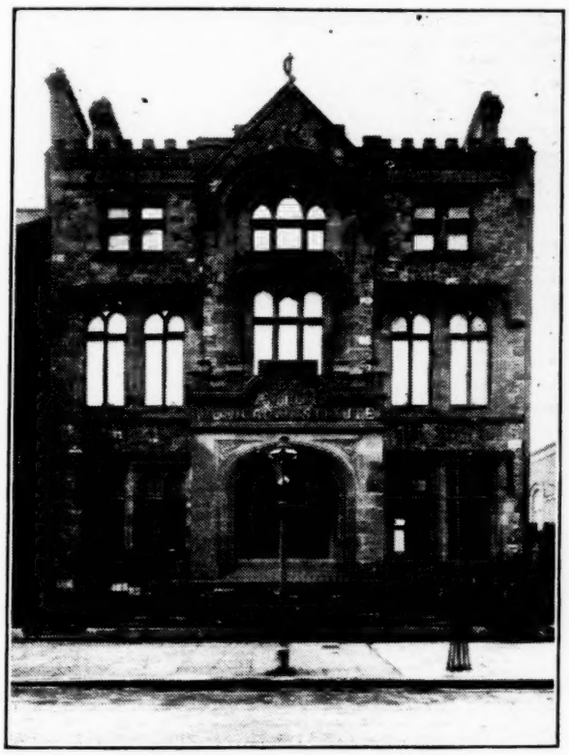


The Queen's University of Belfast

Queen's College, Belfast, was founded by Act of Parliament on the initiative of Sir Robert Peel in 1845. Together with the other Queen's Colleges (at Cork and Galway) the affiliated colleges constituted the Queen's University of Ireland. The formal opening took place in 1849, in which year Queen Victoria visited the institution which has since borne her name. From many standpoints the times might have been regarded as unpropitious. The shadow of the Great Famine still hung over the country, and a feeling of political unrest brooded over Europe and manifested itself in the wave of revolution which spread over every country; yet the demands for better educational facilities took shape in the midst of these major troubles. For thirty years the Queen's University of Ireland supplied the higher academic requirements of Belfast and Ulster, and numbered among its scholars eminent lawyers, clergymen, doctors, scientists, and administrators, Sir Robert Hart, Sir William MacCormac, and Sir Joseph Larmour being of that number. In 1882 the Queen's University of Ireland was

dissolved to give place to the Royal University of Ireland. This was modelled upon the then constitution of London University, being purely an examining body and not responsible for teaching. Arising from various causes a period of acrimonious discussion extending over some thirty years followed, until, in 1908, the Irish Universities Act was passed making provision for the establishment of the National University of Ireland (in Dublin) and the Queen's University of Belfast. Thus has evolved the present centre of academic culture and learning in the capital city of Northern Ireland.

The University is situated on University Road about a mile from the city centre, with the Botanic Gardens Park (Belfast's most beautiful park) as its next-door neighbour. To the original building, opened in 1849, many additions have been made, and the staff has been constantly increased. The west front, with its massive buttresses and stone facings, forms a noble façade and presents an excellent example of architecture in brick. Age has imparted a mellowing touch to the rich Belfast brick which converted the plans of Sir Charles Lanyon, the architect, into a reposeful building. Fronted by trim and ample lawns its harmonies of perspective, in any combination of light and shade, are a never-failing pleasure to the eye; bathed in the glow of the setting sun or in the glamour of moonlight the charm is indescribably deepened.



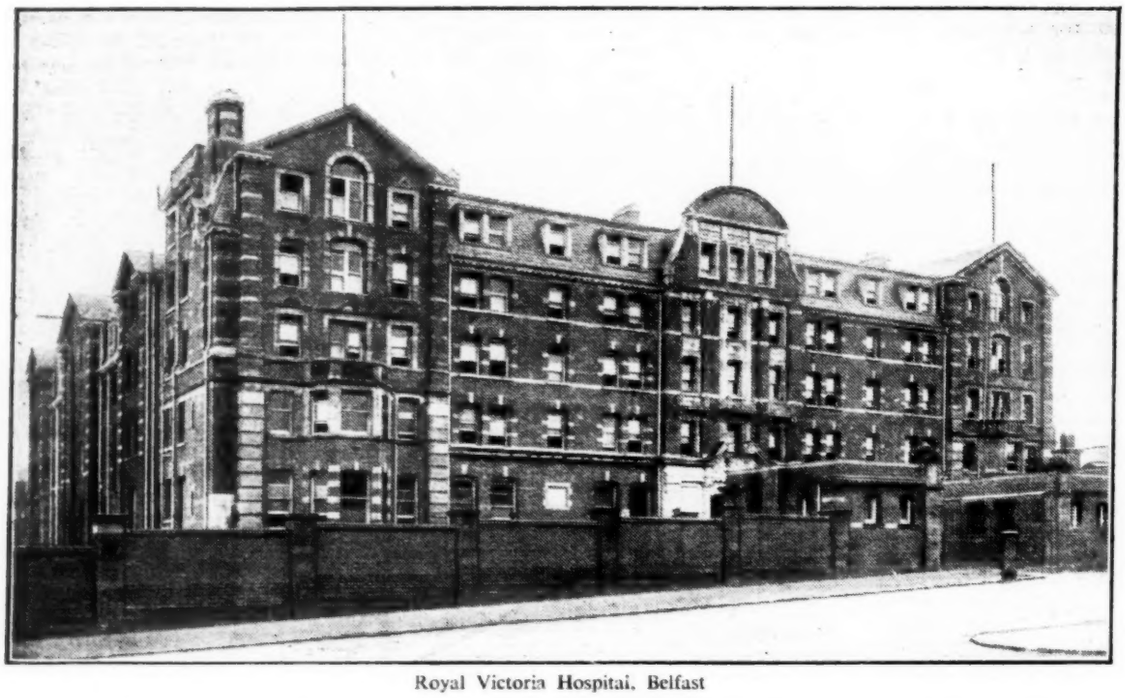
The Whitla Medical Institute, Belfast

The Mater Infirmorum Hospital, Belfast

Growth of Faculties in the University

In 1901 a Better Equipment Fund was inaugurated by the then President of the College (Dr. Hamilton). In 1908, under the Universities Act, additional grants were made to the funds. These welcome accessions stimulated a development which had been all too slow in providing adequate equipment worthy of the teachers who had been carrying on amidst great difficulties in respect of accommodation and teaching facilities. The intimate contact between university life and the main current of national life, which is being increasingly recognized by communities everywhere to-day as of inestimable value, had not then been established. Happily, Queen's University is now in close relationship with the primary and secondary schools throughout Northern Ireland, and the various county borough and county councils have evinced additional interest in the University by providing scholarships and by making grants to University funds. Some years ago the Senate identified the University with the commercial and industrial life of Belfast by recognizing the Municipal College of Technology as a college in which students might pursue their studies in the appropriate faculty of applied science and technology. In 1924 a faculty of agriculture was established as an evidence of the close relationship between the University and the Ministry of Agriculture and of their common interest in the farming community and their desire to further agricultural training and research work.

With the establishment of the University in 1908 faculties of arts, science, medicine, law, and commerce were formed. In recent years other faculties have been instituted, that of applied science (1921), agriculture (1924), and theology (1926). During the past forty years laboratories have been built, additional lecture theatres provided, and modern equipment supplied, but the need for larger and more numerous buildings to meet the demands imposed by the increasing number of students is clamant. In 1909 there were some 600 students; to-day the number is 1,568, of whom 653 are medical. The Students' Union was built in 1897, and extended in 1908 and again in 1933. The Better Equipment Fund amounted to over £100,000, and provided the sum necessary for the erection of chemistry, pathology, and physiology laboratories. The grants made on the founding of the University in 1908 made possible further extensions and the erection of the physics laboratories. Sir Richard Livingstone, during his ten years as Vice-Chancellor (1923–33) made numerous appeals to the citizens, and was untiring in calling public attention to the urgent needs of the University. During his tenure of office the faculty of agriculture was instituted and the admirable agricultural building in Elmwood Avenue erected. Unfortunately, in the eyes of the community the University has been regarded in the light of a Government institution bountifully supported by State grants. The frequent appeals of the Vice-Chancellor were called for to remove this misapprehension and to draw



Royal Victoria Hospital, Belfast

attention to the inadequacy of the annual income and paucity of benefactions. In 1930 a University Guild was formed, composed of prominent citizens, who are encouraged to interest themselves in the University and its needs. The present Vice-Chancellor, Mr. F. W. Ogilvie, is carrying on the work so ably initiated by Sir Richard Livingstone, in the hope that the years to come may bring to harvest the seeds which have been sown, and thus help to sustain the development of this centre of learning and research.

The University Buildings

Immediately to the right of the main entrance hall, which is contained in the main tower of the west façade, is the Great Hall with its lofty roof and mullioned windows. On the walls is a collection of portraits of past presidents, teachers, and benefactors as well as a reproduction of the famous "St. Peter the Martyr" (Titian), the original of which was destroyed by fire in Venice.

From the entrance hall admission to the quadrangle is gained. Around this are grouped the various buildings, containing lecture theatres, laboratories, museums, etc., of the respective departments. The medical building, one of the oldest, is at the eastern side, and contains two excellent museums. The anatomical museum houses many valuable specimens prepared by Johnson Symington; in the medical museum are numerous pathological exhibits in addition to a unique collection of specimens illustrating various fractures of bones and development of the human skeleton—a further memorial to the industry of Symington. On the southern wing is the most recent addition to the University, combining, in an architectural masterpiece, two buildings of entirely distinct periods in a scheme which enhances all three. Here is the Senate room, a handsome chamber panelled in natural oak and furnished accordingly.

The Royal Maternity Hospital

The library is a detached building on the north side of the University proper; it was erected in 1867 and enlarged in 1914. It contains some 135,000 volumes and manuscripts, including many valuable personal collections presented by interested benefactors. The Students' Union is another separate building occupying the north-east corner of the grounds. Built in 1897 it has admirably fulfilled its intended purpose as a social and educational centre. The increasing number of students necessitated the provision of a dining room, the accommodation of which had in recent years been unduly taxed. The Pilgrim Trust came to the rescue, and a handsome new dining hall, built in the Tudor style, was added to the westerly aspect as a gift from the Trust at a cost of £10,000. The gift was most opportune, and the opening in 1933 was the occasion for a characteristic address, breathing high ideals and lofty purpose, by Mr. Stanley Baldwin. The Queen's University Contingent of the O.T.C. was formed in 1908, and is provided with a suitable drill hall and parade ground.

Recently the University converted the terrace of houses on the opposite side of University Road, known as Queens' Elms, into a hostel for men students. This is but a gesture towards fulfilling what has been a clamant

need for many years, and is the first step in providing men students with a residential hostel similar to that provided for women by the munificence of the Misses Riddel at Riddel Hall.

The Medical Faculty

The Belfast Medical School dates from 1818, when lectures were given in the Academical Institution in anatomy, physiology, and chemistry. The school, begun so modestly and unpretentiously, became firmly established largely as a result of the enthusiasm of James McDonnell (a native of the Glens of Antrim). In 1835 chairs of surgery, midwifery, and materia medica were added, and in the following year chairs of medicine and botany were created to form the Belfast medical faculty, in connexion with the Academical Institution and the General Hospital. With the establishment of the Queen's College the faculty was recognized by the Queen's University of Ireland, and since then a succession of famous teachers has held the attention of a multitude of students, many of whom were destined in their turn to become famous. James McDonnell, Henry MacCormac (the father of Sir William), Peter Redfern, Alexander Gordon, James Cuming (president of the B.M.A. in 1884), Lorrain Smith, T. H. Milroy, Johnson Symington, Sir William Whitla (president in 1909), and Andrew Fullerton are names not readily forgotten in the realms of medical science and teaching. They are engraved on the records of the Belfast Medical School, upon whose roll appear the names of men who played a magnificent part in expounding the tenets of practical medicine, and who were conspicuous for the originality of their outlook upon the problems with which they were confronted in their generation.

The medical faculty has always played a predominant part in the undergraduate life of the University. Out of 1,568 students no fewer than 650 belong to this faculty. Of the number who qualify annually only a small proportion practise in Northern Ireland, the majority establishing themselves in England, in the Colonies, and the Services, so that medical Queensmen are found in prominent positions in the Crown Colonies, the Indian Medical Service, the Army and Naval Medical Services, as administrators in State and municipal services, and as heads of departments in the War Office, the Admiralty, and the Air Force.

The Belfast Hospitals

The clinical teaching of students is amply catered for in the various city hospitals. The visitor will be impressed by the facilities available, and will perhaps be envious that his days as clinical clerk or surgical dresser are but a memory.

The Royal Victoria Hospital is the largest centre of clinical teaching in Ireland. It owes its origin in 1792 as a dispensary to the enthusiasm of James McDonnell, the debt to whose memory can never be repaid. A few years later a fever hospital was built, and in 1817 the General Hospital was opened in Frederick Street during a terrible epidemic of typhus fever ("the victims were carried into the new buildings, whose freshly plastered walls were still dripping with moisture, and whose stairways had been rendered secure by the overworked carpenters and masons"). Many of the older members of the profession in Belfast speak with reverent thoughts of the days in "the old hospital in Frederick Street," but the building has recently been demolished, and this link with former medical teaching has now disappeared for ever. This General Hospital was enlarged to 180 beds, and became the Royal Hospital in 1875. Towards the end of the century it was recognized as being totally inadequate in its capacity and out of date as a hospital for modern needs. The story of the present magnificent institution, opened in 1903 by King Edward VII, is the record of the enthusiasm and personality of the late Viscountess Pirrie (wife of the former head of the famous shipbuilding firm of Harland and Wolff Ltd.).

The hospital is built upon a site granted by the city corporation. Much discussion took place as to the best situation, but the choice has proved more fortunate than was contemplated by the far-seeing citizens of thirty-seven years ago, because the Royal Victoria Hospital is now the centre of a colony of hospitals which includes the Royal Maternity Hospital, the Belfast Hospital for Sick Children, the Queen's University Institute of Pathology, a Private Patients' Pavilion, and a new Nurses' Home. Work will soon start on further extensions as a memorial to the late King George V. These are all accommodated on an estate of twenty-five acres, formerly occupied by the Lunatic Asylum.

All the wards of the main hospital are on one floor and branch off the southern side of a corridor almost 600 feet long. Each pair of wards is a "unit" under the control of a physician or surgeon, complete with its own ward kitchen, clinical room, lecture theatre, and operating theatre (in the surgical units); heating and ventilation are by the plenum system. It is difficult to keep pace with the developments of the hospital, but the visitor will be impressed by the progressive outlook of those responsible for the care of the sick and by the onward march of scientific research and treatment. The institution at present has 436 beds, with complete radiological, electrotherapeutic, and massage departments, as well as a complete floor in the Queen's University Institute of Pathology close by, where clinical pathology and bacteriology are housed.

The Royal Maternity Hospital

The Royal Maternity Hospital is one of the oldest Belfast charities, having been founded in 1794. The old Belfast Maternity Hospital in Townsend Street carried on for many years under serious disabilities of cramped accommodation and inadequate equipment. It became unsuitable as a teaching hospital for midwifery. Amalgamation with the Royal Victoria Hospital was the dream of the progressive element of the Board of Governors. Fortunately this has come to pass, and now the hospital, while autonomous, shelters under the wing of its stronger partner. The new hospital, opened some four years ago, has attracted widespread interest as a practical conception of a modern maternity hospital, and those interested in hospital building, equipment, and administration will find ample material for study and imitation. The hospital has accommodation for 100 patients, including antenatal wards and a private department for paying patients.

The Institute of Pathology

Adjacent to these buildings and connected with the Royal Victoria Hospital by an overhead corridor is the Queen's University Institute of Pathology. Successful negotiations between University and hospital authorities resulted in the transfer of the department of pathology from the University to the hospital, with the result that the present arrangement typifies the proper relationship and common interest that exist between the two bodies. The building was erected in 1930 on three floors, one for bacteriology, one for pathology, and the top floor for hospital bacteriological and biochemical departments. Each department is generously provided with suites for research workers, and within the building are contained teaching laboratories, lecture theatre, museum for the display of selected specimens (each furnished with a complete clinical file), and a pathology library.

The Belfast Hospital for Sick Children

The Belfast Hospital for Sick Children remains an independent unit, but its close proximity within the grounds gifted by the city corporation entitles it to be included in the description of the hospital colony. It was founded in 1873 as a dispensary with six beds, and was enlarged to a small hospital in Queen Street, built in 1879. It is unique in that it is the only hospital in Ireland which devotes itself solely to the care of sick

children. Various extensions were made from time to time, but its situation within a very short distance from the city centre limited its development and determined its removal to a more suitable site on the Falls Road. The present hospital, built in 1931, has accommodation for eighty-four children, and possesses a large out-patient department with ample room for future development. A recent gift of £15,000 for the provision of a private patients' department is an index of the interest with which the hospital is regarded by the beneficent.

The Mater Infirmorum Hospital

This is the only other general hospital besides the Royal Victoria under the voluntary system. It consisted originally of a house gifted by a former Roman Catholic Bishop of Down. In a few years the house was demolished and a handsome hospital was built upon the site. In contrast to the sister hospital it is constructed on the pavilion system in a very attractive style. The extern department has recently been rebuilt to meet the increasing demands upon its services. There is a modern radiological department and laboratory, so that the "Mater" contributes its quota to the clinical teaching supplied by the Belfast hospitals. A recent addition is Beechmount Hospice for chronic cases, which has brought the total number of beds up to 300. The nursing is carried out under the supervision of Sisters of Mercy, but patients of any religious creed are freely admitted.

The Ulster Hospital for Children and Women

This is the only hospital on the County Down side of Belfast. It was established in Fisherwick Place in 1873, but was moved in 1891 to Templemore Avenue in the populous working-class district of Ballymacarrett. The nucleus of the present hospital, built in 1912 at a cost of £10,000, soon proved unequal to the many demands made upon its services. Intelligent extensions according to a preconceived plan have been made at intervals, until to-day it is one of the most modern institutions. It has a large out-patient department for children and women, and the extensions recently opened make available eighty cots for children and twenty beds for gynaecology. It is closely associated with the Institute of Pathology and the other teaching hospitals.

The Belfast Fever and Mental Hospitals

Those who are interested in fever and mental hospitals should make an effort to visit either or both of these institutions. They are established on a 450-acre estate at Purdysburn, two miles from the Malone and Ormeau tram termini and about six miles from the city centre. The fever hospital consists of six pavilions under the modern system of construction and administration. The Belfast Mental Hospital occupies the larger portion of the estate, the villa system having been adopted with great success from the points of view of treatment and organization.

The Ophthalmic Hospitals

There are two ophthalmic hospitals for the treatment of eye, ear, and throat conditions (in addition to the appropriate departments in the general and children's hospitals). The Belfast Ophthalmic Hospital, founded in 1867, in Great Victoria Street, like all the Belfast hospitals, has been enlarged in recent years and now has modern theatres, up-to-date equipment, and a clinic for the treatment of squint. The Benn Ulster Eye, Ear, and Throat Hospital in Clifton Street was built in 1874. It carries on a valuable service on modern lines, being one of the first of the Belfast hospitals to provide facilities for paying patients.

Other Hospitals

The Samaritan Hospital for Women (Lisburn Road) was the first Belfast hospital to undertake extensions after the war. It was established in 1874, being a further manifestation of the interest and generosity of the Benn family. The Forster Green Hospital for Diseases of the Chest and Tuberculosis is beautifully situated at Fortbreda, just beyond the Ormeau Road tram terminus. The present institution was provided by the late Mr. Forster Green in an estate of forty-five acres. Additional beds have been provided from time to time to meet the demands for modern treatment. A nurses' home to accommodate increased staff has been added within recent years, and the equipment has been supplemented by the addition of modern aids to diagnosis and treatment.

The Municipal Sanatorium at Whiteabbey and the Hospital for Surgical Tuberculosis at Graymount occupy a sheltered site beneath the rugged mass of the Cave Hill. They are situated on a gentle elevation with a splendid view of Belfast Lough, and provide facilities for the most modern treatment of tuberculosis which can be available convenient to an urban area.

The Belfast Union Infirmary

The Belfast Union Infirmary, controlled by the Board of Guardians, is utilized for auxiliary clinical teaching. The children's department has been reorganized so that the new buildings provide every modern aid towards diagnosis and treatment. The Jubilee Maternity Hospital, opened in 1935, is a further tribute to the progressive spirit of the Board in providing a modern maternity hospital which compares very favourably with its counterpart, the Royal Maternity Hospital.

The Whitla Medical Institute

The story of the Belfast Medical School would be sadly incomplete without mention of the name of Whitla. Members of the Association who visited Belfast in 1909 will recall the memorable year marked by the presidency of the late Sir William Whitla, but the school will ever remember his name for his contributions to medical literature and for the munificence of his gifts. The Whitla Hall, recently built at the Methodist College, and a still larger hall to be placed in the grounds of the University are but further expressions of the already magnificent generosity displayed in providing the Ulster Medical Society with its Medical Institute. On Sir William's death, three years ago, the designation of the Institute was changed to bear his name, and it has now become familiar to many visitors (by correspondence) as the headquarters of the local executive committee for the forthcoming annual meeting. It is the home of the Ulster Medical Society, who very generously placed the building at the disposal of the committee. Its handsome library has been the centre of the activities of the past weeks, and has proved an ideal venue for the work and meetings of the various committees.

The Ulster Medical Society dates from 1862, having been formed by the amalgamation of the Belfast Medical Society (founded in 1806) and the Clinico-Pathological Society (founded in 1853). It numbers many famous names among its presidents and fellows, past and present. The Institute was the gift of Sir William on the occasion of the annual dinner of the society in 1901. It contains a library, committee rooms, lecture theatre, billiard room, and steward's quarters. The lecture room seats 200, and here the annual dinner is held as well as meetings of the Ulster Medical Society, the Branch and Division of the British Medical Association, and other medical bodies.

One of the features of the Institute is the stained glass panel erected over the fireplace in the library. It is a

memorial to the late Dr. William Smyth of Burtonport (Co. Donegal). The Countess of Dudley (Vicereine of Ireland at the time), in unveiling the window, paid a glowing tribute to the man who, when all others refused to help, carried food and medicine to the people of the typhus-stricken island of Arranmore, and who eventually died of the fever contracted from the patients he had succoured. Helping him was Dr. Brendon McCarthy, both of whom, Lady Dudley said, were everyday heroes, totally unconscious of having performed any unusual act of heroism.

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THE TUBERCULOSIS ASSOCIATION

PROVINCIAL MEETING AT MANCHESTER

The annual provincial meeting of the Tuberculosis Association was held in Manchester from June 10 to 12 under the presidency of Dr. S. ROODHOUSE GLOYNE. The meeting had been arranged jointly with the North-Western Tuberculosis Society. Papers were read in the lecture hall of the Central Library, and a visit to the Manchester Sanatorium at Baguley, where members were entertained by Dr. H. Trayer, the medical superintendent, took place on Friday afternoon. In the evening the annual dinner was held at the Midland Hotel. The Lord Mayor and Lady Mayoress of Manchester, and Professor J. S. B. Stopford, Vice-Chancellor of the University of Manchester, and Mrs. Stopford, were among the many distinguished guests of the association.

Collapse Therapy

The first subject for discussion was how long should collapse therapy be delayed. In opening, Dr. GEOFFREY MARSHALL said that the production of an artificial pneumothorax was only contraindicated in cases in which the lung volume was very deficient, as in emphysema, and when there was a large superficial cavity with adherent walls. Infiltration of the opposite lung might not be a contraindication, but it should at least cause some delay. Extrapulmonary complications such as tuberculosis of the larynx or intestines were indications rather for the acceleration of artificial pneumothorax treatment.

Phrenic interruption by crushing or by evulsion rarely caused a serious reaction, and was applicable either with an artificial pneumothorax or in those cases in which it was impossible to induce a pneumothorax. Apicolysis and plombage he described as having "waxed and waned" in the approval of chest surgeons. He believed that this operation was still practised mainly because it produced pretty *x*-ray pictures—which bore no relation at all to the patient's clinical condition. Thoracoplasty was often delayed until all the less drastic methods had been tried and had failed. Patients regarded it as a last line of defence, a view which was probably correct. It was a severe operation which should never be performed while there was any active or increasing disease process in the lung. It should be undertaken only after prolonged medical treatment had raised the patient's resistance to infection. A well-timed intervention made it possible for Nature to heal cases in which the damage might otherwise have been considered irreparable.

Mr. H. MORRISTON DAVIES discussed the same problem from the surgical point of view. He said that when thoracoplasty proved successful in obliterating lung cavities, then there was little doubt as to the permanence of the cure; but after partial thoracoplasty recurrence in a lower lobe was possible, and did occur. The relief of symptoms afforded by any form of collapse therapy might give a false sense of security which would lead the patient to take unjustifiable risks. That rest in bed was the basis of all treatment, and that there was no definite order in which to apply the various medical and surgical methods of treatment, were, he believed, axiomatic. The surgeon should insist upon pre-operative rest in bed for at least six weeks. But it was dangerous to wait too long, for there might be an extension of the disease to the other lung, which would completely contraindicate any immediate thoracoplasty. On the other hand, in the period of waiting spontaneous healing might, in rare instances, take place. He believed that in any case in which an artificial pneumothorax was shown to be inefficient, and in which adhesiolysis was not feasible, thoracoplasty should be undertaken as soon as possible.

In an interesting discussion on these two papers Mr. J. E. H. ROBERTS said that he and his colleagues at the Brompton Hospital in the past had done eighty-four consecutive thoracoplasties in favourable cases and all were discharged well. In a more recent year, when many unfavourable cases were operated on, their mortality was 14 per cent. He believed that the only real test of the efficiency of surgical collapse was the increased expectation of life which could be offered to patients who would otherwise die. In the course of further general discussion Dr. MAURICE DAVIDSON, Dr. GILMOUR, Dr. JAMES WATT, Dr. G. T. HEBERT, and Dr. P. J. L. DE BLOEME took part. The value of repeated sedimentation tests and of the Schilling test were considered at some length, as was the possibility of gastric complications following left-sided phrenic evulsion.

Bronchiectasis in Pulmonary Tuberculosis

With Dr. G. JESSEL in the chair Mr. J. E. H. ROBERTS read, and illustrated with lantern slides, a short and provocative paper on bronchiectasis in pulmonary tuberculosis. Mr. Roberts said that all patients who were classed as cases of chronic fibroid phthisis and who were producing each day three ounces or more of sputum were really suffering from the effects of bronchiectasis. Massive collapse due to obstruction of a bronchus by a blood clot might abruptly follow a severe haemorrhage. The patient might even feel his heart being displaced. Unless there was a rapid re-expansion bronchiectasis would develop. Haemoptysis was more common in bronchiectasis than in tuberculosis, and tended to be more severe. Bronchiectasis was best diagnosed by injecting lipiodol into the trachea and taking a bronchogram. He had never seen any ill effects follow injection into a tuberculous lung, and in at least one American sanatorium bronchograms of tuberculous patients were taken as a routine.

Pleural Effusions after Thoracoscopy

Dr. O. M. MISTAL of Montana, Switzerland, in an interesting paper on this subject, said that pleural effusions were very rare after a simple thoracoscopy, but if they occurred they might be sero-fibrinous, haemorrhagic, or purulent, and appear early or late. Thoracoscopy with adhesiolysis improved the prospects of artificial pneumothorax therapy. Effusions were usually small after thoracoscopy alone, but were often large after the division of adhesions. Their appearance might be due to defective sterilization, trauma to pleural tubercles, or the freeing of bacilli after cauterization of an encapsulated adhesion containing the prolongation of a cavity; in 30 per cent. of cases they were said to be due to haemorrhage caused by the anaesthetic. Haemorrhagic effusions usually resolved, but occasionally went on to form an empyema. The more rapidly an empyema appeared after the operation the worse was the prognosis. It was important to free all the adhesions because the complication was much commoner after incomplete pleurolysis. In the treatment of empyemata he advised repeated aspiration, and if necessary wash-outs. Up to four pints of oil might be injected into the pleural cavity in order to create an oleothorax. For secondarily

infected purulent effusions he described and demonstrated a method of direct ultra-violet irradiation by means of a small electrode introduced into the pleural cavity. This instrument which he had devised had a bactericidal effect, and seemed to assist the healing of the tissues. He thought that the complications of adhesiolysis could generally be avoided by good technique and a suitable selection of cases. Their occurrence did not in any way diminish the value of thoracoscopy and pleurolysis, which had, he believed, improved considerably the results of artificial pneumothorax therapy.

Dr. S. ROODHOUSE GLOYNE suggested that the parietal pleura perhaps played a greater part in the formation of exudates than did the visceral pleura. Pleural symphysis in the absence of pleural effusion was commoner in the pneumoconioses than in other conditions. Dr. JAMES CROCKET believed that pleural effusions were best treated by injecting air every fourteen days to maintain pressure and prevent adhesions. After aspiration he thought it important to wash out the pleural cavity with acriflavine, 1 in 2,000 to 1 in 5,000 solution.

In reply, Dr. MISTAL explained that though he had devoted his lecture to the complications of thoracoscopy, they were actually infrequent. He gave a series of statistics showing this and indicating how the majority of thoracoscopies were effected without incident.

Unilateral Pulmonary Tuberculosis

On June 11 Dr. DE BLOEME of Laren, Holland, gave a paper on the treatment of unilateral pulmonary tuberculosis. He said that of 1,260 patients whose records he had analysed 12.6 per cent. were admitted to his sanatorium for recent pleurisy with effusion; 52 per cent. for bilateral pulmonary tuberculosis; 4.6 per cent. for extra-pulmonary conditions; and 22.1 per cent. for unilateral pulmonary tuberculosis. Tubercle bacilli were found in the sputum in 59.5 per cent. of these cases of unilateral pulmonary tuberculosis. All his patients were kept in bed until sputum tests had remained negative for a full three months. In the last five years he had seen 166 cases of unilateral pulmonary tuberculosis; of these, 101 were treated with collapse therapy. Sputum which had been positive changed to negative in 75 per cent. of patients treated conservatively, and in 74 per cent. of patients treated by collapse therapy. He believed that it should be possible to diagnose some 25 per cent. of all cases of pulmonary tuberculosis in the unilateral stage of the disease. Dr. De Bloeme showed some interesting analyses of the effects of varying forms of treatment. In all his cases the duration of treatment before working capacity was fully restored was as a rule from eighteen to twenty-eight months. He then discussed a series of lantern slides of tables indicating the average periods of stay in hospital in cases with or without cavities, and treated either conservatively or by collapse therapy.

Dr. FREDERICK HEAF, Dr. EDWARDS, and Dr. FLETCHER took part in the discussion. Dr. Edwards said that an experience of 1,300 phrenic evulsions had convinced him that this operation alone had no advantage over artificial pneumothorax, but when combined with pneumothorax it was of great value. Figures taken from 1,900 cases showed that of those who had had a complete artificial pneumothorax, 60 per cent. were alive at the time of the follow-up study, whereas of those who had had in addition a phrenic evulsion 90 per cent. were alive. Dr. DE BLOEME replied briefly to the discussion, and in answer to a question said that there were at present 37,000 sanatorium beds in Holland.

The Tuberculosis Problem

Five speakers opened a most interesting debate on difficulties in dealing with the tuberculosis problem. Professor A. RAMSBOTTOM, speaking as a consulting physician, pointed out the importance of certain vague symptoms, such as undue tiredness, anorexia, and loss of weight. Dyspeptic symptoms might mask the real diagnosis. In the case of a patient who complained of spitting blood but had no definite signs, he made it a routine to ask if the blood was intimately mixed with the sputum, and if the patient had coughed and spat blood, this indicating a pulmonary origin; or if he had felt something welling up, in which case the nasopharynx was the probable source. The diagnosis once made, it was not difficult as a rule to persuade the patient to go to a sanatorium. He thought that acute lesions in the young always demanded sanatorium treatment, whereas chronic lesions in the middle-aged might often be treated effectively at home, by rest in bed. Another problem was presented by the patient who had just returned from a sanatorium and needed advice as to when he should start work. There was always a danger of converting a sick worker into a healthy loafer. Prognosis, he thought, should always be influenced as much by the family history, the patient's temperament and habits, and the conditions under which the disease was contracted as by the purely clinical findings.

Dr. W. F. JACKSON said that he was a general practitioner working in an industrial region which was classed among the special areas. His main difficulties were those arising from the economic circumstances of his patients. One of his difficulties lay in persuading young people to go to a sanatorium for observation when they were in what might be described as the pre-clinical stage of tuberculosis. Another difficulty was that patients still disliked being notified as cases of tuberculosis. Many firms closed their doors to tuberculosis suspects, and patients knew that if they were notified as tuberculous their livelihood might be endangered. He thought it was still true to say that the working classes could not afford to be ill. The public did not realize how greatly the treatment and prognosis of tuberculosis had improved in recent years, and a great deal of educational work remained to be done. The majority of patients returned from sanatoria with their disease quiescent, and they were often anxious to return to work. Unfortunately a too early return to the environment which had helped to produce their condition often resulted in prolonged invalidism. The dietary that these patients needed was often not available simply because they could not afford it.

He was often questioned by tuberculous patients as to whether they might marry, and if so whether they might procreate. The question was always difficult, because the answer to it was never appreciated by the patients, and no amount of advice seemed to diminish "the fecund urge of those who live in already overcrowded and squalid areas." He knew that the tuberculosis death rate was falling, but he was certain that the rate of invalidism was rising. A drastic rise in the standard of living of the poorer patients was necessary before tuberculosis could possibly be brought under control.

Dr. A. DOVE CORMAC, medical superintendent of a mental hospital, said that in the five years before the war the average tuberculosis fatality rate among his patients was 9.5 per 1,000. In the last five years it was 1.2 per 1,000, which compared favourably with the figure for the general population of 0.8 per 1,000. Mental patients either could not or would not co-operate, and so diagnosis was only possible by keeping regular records of weight and temperature, and if any appreciable variation was noted examining the patients by *x* rays and perhaps investigating the faeces for tubercle bacilli. Dr. Dove Cormac then went on to give certain figures which bore out the criticisms he made of mental hospitals generally with regard to the poor dietary given to patients and the lack of laboratory facilities, and of accommodation for the segregation and treatment of tuberculous mental patients.

Dr. R. E. LANE spoke as medical officer to an industry which included both large and small factories. He said that the chief difficulties in dealing with tuberculosis were economic and environmental conditions, which made patients reluctant to go for treatment, and perhaps even

more reluctant to complete it. The patient feared the possibility of losing his job, the sanatorium stigma, and the sanatorium routine. Propaganda and education were much needed. When the patient had returned to work he must be given a "real job" and not a specially created one if a healthy independence and satisfaction with the work done was to be maintained. In the case of those patients who had returned from sanatoria there should be no shift work, no night work, and no overtime. A tuberculous patient needed subsidizing until he was completely rehabilitated. He thought that there should be a closer liaison between the tuberculosis services and industry. In this country it was the smaller firms who employed more than half the people engaged in industry, and since they had no medical officers, propaganda and the education of both employers and employees must come from the tuberculosis services.

Dr. D. P. SUTHERLAND, speaking as a tuberculosis officer, said that a close-knit organization, with one person in charge of all patients from the stage at which the diagnosis was made up to their return to work, was necessary. He believed that much of the fear of tuberculosis was due to a half-knowledge fostered by the lay press. Increased institutional accommodation was vitally necessary in order to reduce the waiting lists. Knowledge that treatment would promptly follow would reduce appreciably delays in diagnosis and notification.

In the discussion on this subject Dr. H. TRAYER, Dr. DAY, and Dr. O. M. MISTAL took part.

The Tomograph

Dr. J. B. MCDOUGALL pointed out that the bony structures of the thoracic cage had always made visualization of the lung difficult. Stereoscopic radiology had helped to resolve this difficulty, but only to a limited degree. Tomography revealed with clarity lesions which even stereoscopically were difficult to define. The theory of tomography was simple. Both tube and film were moved about a fixed point. This movement blurred and effaced the layers above and below the fixed point, and gave, as it were, a sectional radiograph. Unfortunately this simple technique was applicable only to small fields. For larger fields movement must be in two axes, and therefore a complicated apparatus was necessary. The number of tomographs which might be taken was limited only by the depth of the patient's chest, but in actual practice three were usually sufficient. A ventral one was taken at a depth of 7 cm. from the front of the chest, a median one at the level of the hilum of the lung, and a dorsal one at a depth of 7 cm. from the back of the chest. If additional ones were necessary then they were spaced at intervals of 2 cm., because the depth of the layer represented in the tomographs was about 2 cm. An exposure of one second gave optimum results, with as a rule a 6 kW tube for frontal tomographs and a 10 kW tube for lateral tomographs. The thickness of the section represented varied inversely with the size of the arc of movement. Dr. McDougall then showed a series of tomographs which revealed cavities and processes not shown on the straight antero-posterior radiograph, and gave a very exact picture of the size and extent of systems of cavities. Dr. McDougall concluded by saying that clinical experience of tomography was as yet very limited, but at the moment tomography was of most value in cases of pulmonary tuberculosis. In reply to a brief discussion, he explained that up to the present he had taken only some 400 tomographs of just over 100 patients. In 20 to 30 per cent. of these cases the tomographic findings had made the surgeon "hold his hand" where otherwise he would have operated.

Artificial Pneumothorax in Children

Dr. C. D. S. AGASSIZ, in the last paper to be delivered, said that the induction of artificial pneumothorax was rarely considered in children, but was of great value in cases which might otherwise be regarded as hopeless. In mild cases a sanatorium regime often produced good results, but where there was a cavity on one side, with pyrexia, an artificial pneumothorax should be induced. He thought that the time element was much more important in children since their powers of resistance were so much less than those of adults. Artificial pneumothorax should always be considered in epituberculous cases, though they usually did quite well without it. In cases with more extensive adhesions, however, a pneumothorax should be induced as soon as possible; delay of even a month might be disastrous. Most of the symptoms of pulmonary tuberculosis in children were due to toxaemia, and measures which would reduce that toxaemia were always justified. He usually treated the side with the most marked signs, and often found that the opposite lung cleared up very quickly. It was essential to gain the child's confidence, to carry out the operation in a familiar room rather than in a theatre, and to tell the child the truth and not delude him into thinking that the operation would not hurt at all. In from 30 to 40 per cent. of the children he had treated an effusion developed; it was left alone unless it became very large. Experience seemed to show that a partial collapse and small refills were just as effective as a complete collapse maintained by large refills. He concluded by suggesting that in any case of pulmonary tuberculosis in a child artificial pneumothorax therapy should at least be considered. A lengthy discussion, to which he replied, followed Dr. Agassiz's paper. Finally, an enjoyable meeting concluded with the discussion of a series of problem cases which were described by Dr. E. H. A. PASK and Dr. G. JESSEL.

E. Karpelis (*Münch. med. Wschr.*, April 2, 1937, p. 529) states that an increasing number of patients come to the Institute of Medical Cosmetics to have tattoo markings removed. These are deeply embedded in the skin. On microscopical examination the epidermis is seen to be free of particles of colour, which are visible in the deeper layers of the corium, in the cellular tissue beneath the skin, and in the neighbouring lymph glands. Superficial methods of treatment, such as irritant plasters and ointments, re-tattooing with white enamel powder, ultra-violet rays, and decortication of the superficial skin layers are never successful. Agents in which dosage cannot be regulated, such as carbon dioxide snow, electrolysis, scalding with steam, and chemical decorticants, are too variable in their action to be efficient and often do more harm than good. The author advocates excision as the method of choice. Small markings may be removed under local anaesthesia at one sitting; larger areas may be dealt with at several sittings, leaving a fine scar, the origin of which cannot be suspected. In cases in which excision alone is impossible for cosmetic reasons it may be combined with one of the following methods. (1) With the help of the galvano-cautery the epidermis is removed, after which the colouring particles can be dealt with. It is advisable to go from 1 to 2 mm. beyond the actual outline of the picture in order to ensure success. (2) A rasp may be used to remove the superficial layers to the cutis propria. A sharp spoon, similar to that used for chalazions, or a small lancet can then dig out the pigment nodules enmeshed in the underlying cellular tissue. (3) Wederhake's method of undercutting the skin and pinning the flaps to a sterilized board and needling the pigment depots through to the epithelial side is often advantageous. (4) The skin may be scarified and powdered potassium hypermanganate rubbed in; both scarification and rubbing must be energetic, and haemorrhage must be dealt with. A dry dressing is applied, and in ten to fourteen days the scab falls off. (5) Variot's method is useful in similar areas. A petroleum layer is made round the tattoo markings. The area is moistened with concentrated watery tannin solution and needled. A silver nitrate pencil is then used and the area covered with powdered tannin, which finally goes jet black.

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THE SECOND-BEST

Sir Kingsley Wood has earned and established a reputation as an energetic and efficient administrator. He can be relied upon always to stimulate and enlarge the activities of whatever Department of Government he may be in charge, and to secure for it a degree of public attention and appreciation which other Departments may either envy or desire to escape. In the extensive general review of the work of the Ministry of Health which he gave to the House of Commons last week—a report of this speech appears in our Parliamentary Notes—he almost overwhelmed his audience with a mass of facts and figures relative to the varied work of the Ministry, and undoubtedly produced an impression of progress in most directions which, though not escaping some shrewd criticisms, pleased the House as a whole. The Minister's sincere interest in the problems of his Department and his enthusiasm towards the accomplishment of its aims fully deserve the recognition they have received, but some disquieting features of recent health administration should not go unnoticed amidst the general applause. There is a proverb which tells us that "the good is the enemy of the best," and though, like most proverbs, it may have only a limited application, the truth it embodies may be of the most vital moment and is nowhere more likely to be so than in the sphere of health.

In regard to housing the figures given by Sir Kingsley Wood may be impressive, and they will be quoted with effect from political platforms to uncritical audiences; but it can scarcely be denied that the quality, in respect of both structure and arrangement, of large numbers of the houses delivered is unsatisfactory, that far too few of them are available for *letting* to working-class families at rents within their means, and that the amenities and even conveniences of life are lacking from most of the new building estates, which present but a drab prospect to inhabitants and onlookers alike. Slum clearance and mitigation of overcrowding may progress, but it is most disappointing that the Minister should have to say that "when the present programme has been carried out I hope we shall be able to improve the present overcrowding standard." This can only mean that he is at present content, or compelled, to accept a standard which is in great need of improvement.

In other departments of the Ministry's work there have recently been clear indications of a self-congratulatory acquiescence in the second-best, and this in matters in which the medical profession has very direct interest and has an abundant claim to express an authoritative opinion. In regard to maternity, piecemeal legislation and administrative action are still allowed to hold the field, and methods which should be national and centrally directed are left to the discretion of a variety of local authorities, many of which may be unable or unwilling to implement them or may do so in undesirable fashion. A suggestion for the establishment of local lists of practitioners who may be called upon by midwives, on principles which will be resented and combated by the medical profession and which can produce only meagre effects, is apparently still being preferred to one offered by the profession itself which the experience of that profession shows will be much more efficient in providing the best service. In regard to ophthalmic benefit for insured persons, the Minister, disregarding the opinion of a Royal Commission and two Departmental Committees, has now officially established a method of recognizing medically unqualified persons as fit to deal with eye conditions, involving at least a 35 per cent. risk of the most serious consequences to insured persons as a body, whereas there was a professional machinery at his disposal free from that risk. With regard to national health insurance practice in general, he has presented, by both written and verbal evidence, a picture of what he ostensibly regards as a high standard of practice to be accepted under that system, which the general body of practitioners can describe only as greatly understated, both in nature and in scope. Once more, if this ideal of the second-best is to be accepted as that which is expected and paid for, it is to be feared that in many cases it is what may be given, in spite of the fact that most medical practitioners are happily content to fulfil something more than their strict obligations.

In the course of his survey Sir Kingsley Wood said that "although we have the finest social services in the world they are not yet fully utilized," and announced a coming propaganda campaign directed towards their extended usage. The medical profession is not unsympathetic towards such a campaign—with some provisos. May it not be that among the reasons for this lack of full appreciation of what certain publicly provided clinics offer is the fact that these clinics sometimes give only the second-best; and that, since as at present conducted some of them tend to cover a field alternatively provided for through the general practitioner, a discerning and independent public may in certain matters prefer this other provision and find it at

least as satisfactory? At all events it is to be hoped that in the coming campaign it will not be forgotten that in pursuit of the national health it is not less efficacious to urge the public to seek early and skilled advice through the practising doctor than to urge them to do this through the municipal or county clinic. The profession will agree with the Minister that "the fight for good health cannot be successfully conducted with a limited choice of weapons on a narrow front." The sentence with which he concluded his speech is not without significance in this direction to-day. "If possible," he said, "we must broaden our front and deal not only with the specific diseases of the individual, but with the wider conditions of environment and occupation of the people." It has long been supposed that if these two activities are to be contrasted it is the latter which is the primary and principal concern of the central government department and of the local authorities. To have it now presented to us as a sphere to which attention should be directed "if possible" is more than a little astonishing. A well-arranged display of the second-best may make a good show. It may even be worth while, and Sir Kingsley Wood can be relied upon to make it as good as possible; but it is a poor substitute for the best, especially when that best is now in many directions attainable, and it is only too likely to hinder the early attainment of that best.

OVERDOSAGE WITH VITAMIN D

A recent paper by Steck and others from Chicago[1] throws further light on the effects of vitamin D overdosage. In it are summarized the effects of massive doses on sixty-five dogs and 773 patients. The authors have been particularly interested in the use of massive doses of vitamin D in such conditions as hay fever and asthma, and are at pains to answer the criticism that such doses are harmful. There is now no question that at a certain dosage even pure crystalline vitamin D is lethal to man and to animals. There seem to be differences between various species, the rat being highly resistant and the rabbit very susceptible to the toxic effects. It is suggested that man shows about the same degree of susceptibility as the dog. Between individual dogs there appeared to be wide variation in resistance to the toxic effects, but all the dogs apparently survived doses of 20,000 units per kilogramme indefinitely without recognizable intoxication. The death of a man is recorded which was undoubtedly the result of overdosage of a concentrated solution of activated ergosterol: a doctor administered to himself 2,300,000 units daily for eighteen days—that is, 18,000 units per kilogramme, or ten times what he had intended to take. Among the 773 subjects treated with massive doses twenty had received over 15,000 units per kilogramme, and in four of these there were some manifestations of toxicity. Of the large series treated with doses between 3,000 and 5,000 units per kilogramme 4.5 per cent. showed symptoms of toxicity. Five cases are recorded in which symptoms followed doses of between 1,500 and 3,000 units per kilogramme, but the authors do not regard these five as true examples of vitamin D toxicity.

The commonest symptoms of overdosage in adults are polyuria, nausea, vomiting, and loss of weight. Pathologically there is cell injury followed by deposition of calcium, the organ most seriously affected being the kidney. Although they recognize the severity of the toxic effects, Steck and his fellow-workers feel that, provided the patient is under observation and the vitamin is withdrawn or the dose reduced as soon as symptoms appear, the continuation of this treatment is justifiable. They contend that "the burden of proof now rests on those who maintain the undesirability of the use of this form of therapy." To those who believe that the first essential of any treatment is that it should do no harm this reasoning looks rather naïve. The evidence that massive doses of vitamin D are of any value in arthritis, asthma, or hay fever is so flimsy that the burden of proof would seem to rest on those who advocate so unphysiological a method of treatment. The occurrence of toxic symptoms with massive doses is, of course, no argument against the legitimate use of vitamin D along physiological lines. Unfortunately the margin between the therapeutic and the toxic dose in some infants is not very wide. This subject was discussed by L. J. Harris[2] a few years ago. He recommended as a prophylactic dose 250 to 500 units, increasing up to 1,500 units at 1 year, and thereafter 1,500 units a day. Since then two interesting cases have been reported: one by Thatcher,[3] in which the death of a child aged 11 months was thought to result from overdosage of vitamin D; and one by Moncrieff,[4] in which florid rickets developed in a child of 17 months who was presumed to have had an adequate intake of vitamin D. In neither instance, however, is it possible to assess from the data given just how many units of the vitamin had been administered. In Thatcher's case the maximum dose would appear to have been 600 units a day, but this had been administered throughout the summer and in addition to two treatments with a mercury vapour lamp. In

[1] *Ann. intern. Med.*, 1937, **10**, 951.

[2] *British Medical Journal*, 1933, **2**, 367.
[3] *Lancet*, 1936, **1**, 20.
[4] *J. Physiol.*, 1935, **85**, 26.

Moncrieff's case, if the particulars given were correct, the child had been having close on 4,000 units daily. That both these cases are due to some unusual abnormality is indicated by the experience of Shelling and Hopper[5] in the treatment of several hundred patients over a period of six years. During this time they found that 1,125 international units of vitamin D daily in the form of viosterol was effective as a prophylactic dose for all full-term infants. The only exceptions were premature, rapidly growing infants, to whom they considered it was advisable to give up to 4,500 units for the first four months of life, subsequently reducing the dose to 1,125 units. In the treatment of rickets they found that the optimum curative dose was 4,500 units per day, and that doses above this did not increase the rate of healing. Although in many cases they had prescribed up to 13,500 units daily they observed no cases of toxicity. Thatcher lays stress upon the fact that his patient had received vitamin D throughout the summer and had had two treatments with a mercury vapour lamp. There is no way of assessing the amount of vitamin D formed under the influence of sunlight, but the frequency of rickets in the sunny climate of Baltimore, where Shelling and Hopper did their work, suggests that it is not considerable. Their work would seem to go a long way towards establishing the optimum dose for children, which should be at least 1,125 units and never more than 4,500 units. It is most desirable that all vitamin D preparations should be labelled and prescribed in terms of international units.

SURGICAL TREATMENT OF SCLERODERMIA

Within two years two new periodicals devoted to surgery have appeared: first, the *Journal of the International Society of Surgery*, published in Brussels, and now an American monthly with the title of *Surgery*. This journal is published at St. Louis, and in a preface Dr. W. J. Mayo states that in the great tract of country between the Rockies and the Alleghenies *Surgery* will become, to some extent at least, the organ of clinical surgery of the Middle West; and yet it will not be local in any respect, but an organ of the world's surgical thought. He believes that it will fulfil a useful purpose by stimulating the younger men to work. With these new journals two more conduits have been provided for the great flood of contributions to the science and art of surgery; and, while these will add to an outflow which already causes some concern to those who fish the reservoir or the channels which lead from it, time will show what kind of fish select these new channels, and whether the channels themselves will open up and develop or become choked with weeds.

The first paper in the first (January) number of *Surgery* opens as follows: "The ideal and trend of modern surgery may be characterized by the continuous search for a more ratiocinative comprehension of the less obvious alterations in physiologic functions consequent to the more apparent anatomicopathologic processes." This is a formidable opening, but it introduces an interesting paper from the clinic of Professor Réne Leriche at Strasbourg: the subject is the surgical treatment of sclerodermia. Sclerodermia is defined as a condition of sclerosis, induration, and pigmentation of the skin which may be either localized or generalized, and may be associated with asthenia, digestive disturbances, arthritis, muscle atrophy, or other symptoms. Because of the resemblance of certain cases in their initial stages to Raynaud's disease, and the belief that vasomotor disturbances are important as an aetiological factor, sympathectomy has been tried for the condition. Since 1924 Leriche and his associates have operated upon thirteen cases, which they report in detail. They consider that some degree of improvement followed the operation in approximately two-thirds of their patients. The most suitable cases for sympathectomy are those which show pronounced vasospastic phenomena, especially when these precede the cutaneous manifestations. In generalized advanced cases sympathectomy is of little or no avail. Leriche and his co-workers comment on a hypercalcaemia which they find in some cases, and believe that parathyroid dysfunction is sometimes present. Sclerodermia, they believe, should be looked upon as a chronic disturbance of parathyroid function evolving over a long period of time, so that when the patient is finally observed manifestations of hypercalcaemia may be absent. They claim that cutaneous changes clinically and histologically like those of sclerodermia have been experimentally produced in rats by injections of parathyroid extract, and that in man osteoporosis is present in some cases: the hypotonia and asthenia occasionally observed are also suggestive of disturbance in calcium metabolism and of hyperparathyroidism. Since 1931 thirteen cases of sclerodermia have been submitted to parathyroidectomy by Leriche and his colleagues. They claim improvement in over 90 per cent. In certain cases sympathectomy and parathyroidectomy were combined. M. G. Jeanneney[1] has reported to the Medical and Surgical Society of Bordeaux two cases of sclerodermia in which he performed partial parathyroidectomy in January and August, 1936, respectively: the first case showed only slight if any improvement, but it was thought probable that it had been rendered stationary; considerable improvement was claimed for the second case. Leriche and his co-workers conclude their paper by stating that the aetiology and pathogenesis of sclerodermia are unknown, but that up to the present non-surgical treatment has been of little or no avail. They regard it as unjustifiable to state definitely that sclerodermia is caused by hyperparathyroidism, but they believe that the evidence supports their contention that a chronic hyperparathyroidism is present in sclerodermia and that parathyroidectomy ameliorates the condition. Sympathectomy may be combined with parathyroidectomy

[5] *Johns Hopk. Hosp. Bull.*, 1936, **58**, 137.

[1] *Gaz. Hebd. Sci. méd.*, March 21, 1937, p. 178.

in those patients with symmetrical lesions, especially of the extremities, and in those having typical vasomotor disturbances.

HEALTH INDICES

An endeavour to rationalize the presentation of material for use in the preparation of statistics relating to health has recently been described under the title of "Health Indices."[1] There is, the authors of the article state, increasing recognition of the fact that mortality figures by themselves, even where authoritative, are not a complete criterion of the healthiness or unhealthiness of a community. Other relationships which have been adduced as bearing obviously on the question have so far been applied for the most part in investigations of limited range, and the need is felt for a system, at once more flexible and comprehensive, which could function, if not in every possible case, at least in a wider field. The working out of the system here presented, which aspires to meet these requirements, originated at Geneva, but was later transferred to the United States in order to benefit by the experience already accumulated in that country in the matter of health surveys. Pioneer studies had been made there by Dr. John S. Billings while chairman of a committee of the American Public Health Association. His schedule of the topics which he regarded as possessing significance was broadly based, well founded, and far ahead of contemporary opinion. But in more recent times his aims appear to have been largely lost sight of and his ideals narrowed down to the production of rating sheets or appraisal forms, equipped with which, duly filled in, cities and counties have courted applause in "health conservation contests." While these contests served the undoubtedly useful purpose of stimulating community interest in health, the points which they stressed had too little reference to the basic criteria of healthiness. The new system of health indices does not omit the essentials. As presented it is composed of three main divisions: (A) indices of vitality and health; (B) indices of environment; and (C) indices of administrative activity. The categories of division A are population, natality, stillbirths, infant and maternal mortality, general mortality and causes of death, morbidity, invalidity, insanity and mental defects, alcoholism and drug habit, accidents, suicides and homicides, and examinations of physical fitness. The categories of division B, environment, are climate, topography and density of population, occupation, distribution of wealth, cultural level, illegitimacy and prostitution, housing, nutrition, and consumption of alcoholic beverages, etc. The categories of division C, indices of administrative activity, are community expenditures on sickness and public health, sanitary personnel, vital statistics, laboratory services, acute communicable diseases, venereal diseases, tuberculosis, other diseases, general public health nursing, maternity hygiene, infant and pre-school hygiene, school hygiene, physical education, general sanitation, food inspection and nutrition, housing, industrial hygiene, health instruction, care of the insane and feeble-minded, hospital facilities, health insurance, free medical assistance, invalidity care, and care of the aged. The completion of the full list of items under all the forty-four categories for a large and well-organized city is a task of some magnitude, even allowing for the circumstance that all the items may not figure in every area. For routine use an abridged list of a hundred indices is offered. For initiating comparative studies of a number of communities there is added a short list of sixty indices. The use of the indices is exemplified by a study of the city of New Haven, Connecticut. The compilation naturally bears the stamp of transatlantic usage and health organization, but the indices, properly handled and, where necessary, adjusted so as to fit in with local conditions, should serve to elicit in any country numerical data in a form amenable to statistical treatment.

[1] *Quart. Bull. Hlth. Org. L.o.N.*, 1936, **5**, 901.

CHEMICAL PROPERTIES AND PHARMACOLOGICAL ACTION

The correlation of pharmacological action and therapeutic effects with chemical constitution and physico-chemical properties has attracted many workers, but hitherto progress has lagged. The similarity of effects of substances of vastly different chemical structure and the great complexity of the organs and tissues upon which they appear to act make the problem difficult of solution from the start. The absence of any unitary hypothesis renders the production of therapeutically active synthetic compounds a tedious business, and there seems nothing for it but to test innumerable compounds with the hope that somehow an active one will be hit upon. When an active body is discovered little, if any, reason is found for its activity, and it often happens that slight modification of the molecule produces a change in activity out of all proportion to the apparent significance of the change in chemical structure. In certain fields empirical rules have been evolved which give a rough guide for the synthesis of new agents—e.g., in the field of anaesthetics, where a criterion to be followed is lipoid solubility—but in the main good fortune plays a predominant part. When we consider, as Starkenstein[1] points out, the infinite possibilities of reaction between the molecules of protein, carbohydrates, fats, and sterols, and organometallic and dissociated inorganic combinations in the cell, then the problem can be more clearly defined. But the constant proximity in protoplasm of oxidation and reduction, of formation and neutralization of acid and alkaline valencies, must be associated with biological events of which we can only be dimly aware. Even when, as in the case of hypnotics, narcotics, local anaesthetics, and organic arsenicals, relations are known between constitution and effect, reliance must still be placed upon demonstrable pharmacological action and not upon chemical properties. Examining the similar problem of toxicological action, Starkenstein notes that, whereas so many pharmacological agents can bring about acute toxic effects, only few lead to chronic poisoning. This he finds true not only for complicated organic compounds of high molecular weight but also

[1] *Klin. Wschr.*, 1936, **15**, 1865.

for simple elements and inorganic compounds. A series of investigations made him conclude that only those substances can lead to chronic poisoning which exert a paralytic action in the organism. Poisons, on the other hand, which only act in the direction of stimulation appear never to produce chronic poisoning. Applying these conceptions to the elements arranged in the periodic system, Starkenstein finds that only the following elements are capable of producing chronic intoxication: mercury, thallium, lead, bismuth, phosphorus, arsenic, antimony, manganese, and radium emanation. All these elements except manganese fall either into group 5 (sub-group b) or period VI of the periodic table. The precise significance of this fact is not immediately obvious, but it led Fürth to examine the physical properties of the elements mentioned. Most of these he found to be supra-conductors—i.e., their electrical resistance suddenly disappeared at certain temperatures. This led to further investigation of the physical properties of the elements with the object of further correlation with pharmacological action. It was found that the ratio of the melting point (absolute) to the density expressed some characteristic property. If the elements are arranged in ascending order of this ratio he found that those which can produce chronic toxicity appear mainly at the head of the table with the lowest values. This was not the case for all the elements mentioned above, but the exceptions (As, Sb, P, Mn) had the property of forming alloys which also gave very low values for the ratio investigated. Since the elements which cause chronic poisoning exert their influence when brought into the organism as such, Starkenstein and Fürth suggest that some significance must lie in the demonstrated facts that they are supra-conductors on the one hand and have low M.P./density ratios on the other.

QUEEN'S INSTITUTE OF DISTRICT NURSING

The jubilee of the institute was commemorated on Wednesday, June 16, when Her Majesty Queen Mary, its Patron, inspected at Buckingham Palace over 2,000 Queen's nurses and awarded badges to those who had qualified for them. In 1887 Queen Victoria gave £70,000, part of the Women's Jubilee Offering, to found the institute. She became its Patron, Queen Alexandra followed her; on her death £233,000 was raised for the institute as a memorial to her. She was followed by Queen Mary, the present Patron. The institute prepares nurses who have received full hospital training for the special work of district nursing. It ensures by a system of inspection that their work shall be kept up to a high standard. It provides district nurses for England, Scotland, Wales, and Ireland. The magnitude of the task is shown by the fact that about fifteen million visits are paid yearly to patients in their own homes by some 7,000 nurses, which works out at 50,000 visits a day. The institute's nurses attend nearly 69,000 cases of midwifery yearly; the mortality rate of these is 2.58 per thousand. The institute is celebrating its jubilee by raising funds to enable it to train more nurses and to help the local District Nursing Associations to raise funds to pay for and suitably house as many Queen's nurses as are required for each district. Medical practitioners, who know full well the value of district nurses, will no doubt use their influence in support of the jubilee appeal.

BLOOD GROUPING OF THE BANTU

The art of investigating blood groups has been of valuable assistance to the ethnologist. Few nations, especially primitive ones, know much about their own history, and what they do know is often distorted by legend. The language of a race may disappear through the imposition of the language of a conqueror. The anthropologist may easily lose himself in a multitude of measurable characteristics. Blood grouping alone can show the exact proportion of blood introduced by invaders into an invaded people of a different group coefficient. The literature on the blood-group characteristics of various races is enormous, but much work can still be done with benefit to ethnology provided that the results are accessible and properly classified. One of the latest population studies is a thesis on the grouping of 5,000 Bantu of different races by R. Elsdon-Dew of the South African Institute for Medical Research, Johannesburg.[1] He found that the Bantu are not homogeneous from a serological point of view, but their position on the diagram by which it is customary to show the serological characteristics of a people indicates a more primitive distribution of the blood groups than that found in any other black race for which the figures are available. He concludes that the Bantu are the most primitive black race known, and that the negroes are the result of a mixture of Bantu with some other stock, such as the Egyptian. They must, he thinks, have separated from the main mass of mankind before the characteristics A and B appeared. Anthropologists have already indicated that the Bantu are predominantly of negro origin, with a lesser proportion of Caucasian blood. If this is true then the other progenitor of the Bantu must have had even less A and less B than they, and, if the proportion of Caucasian blood is more than a trace, must have stood very near the origin of the diagram, the point where there are no A or B characteristics in a race at all. Serologically, the Hottentots are predominantly Caucasian, but, either alone or with the Bushmen, they could not have drawn the Bantu from the origin to their present position, for, if they had, then the Bantu would be for the most part Hottentot–Bushmen. On the other hand, intermixture with the Caucasian races could have given the Bantu their present place, and so the serological findings confirm those of anthropology, linguistics, and cultural studies. The tentative reconstruction which Dr. Elsdon-Dew suggests is that at some early date Africa was inhabited only by a black race, probably living near the West Coast, and having O as their sole blood group. Then the country was invaded by a light-skinned small race bearing the factors O and A only. These people probably did not come into contact at this stage with the black inhabitants, but moved south, founding the race of Bushmen. Next came the invasion of a taller light-skinned race, bearing again only the factors O and

[1] *Publ. S. Afr. Inst. med. Res.*, 1936, No. 39, **7**, 217.

A. They remained in the north and formed the progenitors of the present Berbers. Finally, a race having all the blood groups invaded and spread throughout Africa, a part of them moving down to Central Africa, pushing the Bushmen further south. The modern representatives of this race are the Hottentot. At this stage the black race, still unaffected to any great extent by factors A and B, moved south with the Hottentot and the Bushmen in front, while further invasions of completely grouped races behind affected those left in West Africa and the rearguard of the black horde. This interesting conjecture is, of course, subject to revision in the light of further experience, but it is obviously based on prolonged, skilled, and careful research. Incidentally, Dr. Elsdon-Dew's thesis gives one of the clearest summaries of the elements of blood grouping that has yet appeared.

AN UNUSUAL PITUITARY SYNDROME

Since Simmonds described in 1914 the syndrome produced by destruction of the anterior lobe of the pituitary further confirmation of the widespread influence of this gland has been obtained, especially during the last decade. The possible relationship, direct or indirect, of the anterior pituitary and blood formation has so far not attracted a great deal of attention. I. Snapper, J. Groen, D. Hunter, and L. J. Witts[1] now describe a remarkable syndrome of anterior pituitary and gonadal insufficiency associated with achlorhydria, anaemia, and subacute combined degeneration of the cord. They present six patients, four men and two women, between the ages of 42 and 58, all of whom had had symptoms of anterior pituitary insufficiency for a number of years, and one of whom had signs of a chromophobe adenoma. Insufficiency of the gonads, considered to be secondary to hypopituitarism, was shown in these patients by lack of physical vigour and sexual interest or desire, amenorrhoea, and in two cases by small size and imperfect descent of the testes. The facies was dull and expressionless, the movements lethargic, sexual hair was absent, and the hair of the scalp and eyebrows was scanty or absent. The basal metabolic rate, in the four patients in whom it was estimated under suitable conditions, was considerably depressed, but there was no reason to believe that they were suffering from true myxoedema. The skin was soft, moist, and elastic, there was no subcutaneous oedema, the appearance of the patients bore no resemblance to that of a patient with myxoedema, and the basal metabolic rate, unlike that of myxoedema, was raised by the administration of thyrotropic hormone. All the patients had hypochlorhydria and five complete achlorhydria. Anaemia developed relatively late in the course of the disease. In three there were symptoms of subacute combined degeneration of the cord: in one the anaemia was hypochromic and responded to iron, and in two it was of the Addisonian type and responded to liver treatment. The authors consider that the anaemia was essentially gastrogenous, and hence an indirect effect of insufficiency of the anterior lobe of the pituitary. They postulate that anterior pituitary deficiency is followed by achlorhydria, and that the achlorhydria may induce after a long interval an iron-deficiency anaemia, a liver-deficiency anaemia, subacute combined degeneration of the cord, or a combination of these conditions.

[1] *Quart. J. Med.*, 1937, **6**, 195.

PREVENTION OF URINARY CALCULI

In patients who suffer from some disease of bone needing prolonged immobilization, and who at the same time have retention and infection of urine, the presence of calculi in the urinary tract is an unpleasant and not infrequent complication from which every effort should be made to guard them. The patient undergoing prolonged orthopaedic treatment needs protection from this complication just as elderly immobilized patients do from hypostatic pneumonia. The urinary problem has recently been studied by Higgins and Schlumberger[1] of Cleveland, who point out that in patients undergoing orthopaedic treatment several of the known aetiological factors associated with the formation of urinary calculi are aggravated either by their disease or by its treatment. These factors are infection (either local or focal), stasis, hyperparathyroidism, nutritional deficiency, and phosphaturia. Investigations have shown the great importance in these immobilized orthopaedic cases of the nature of the diet and the reaction of the urine—two factors intimately related. Diet, however, is of more importance than its effect on the hydrogen-ion content of the urine, because it is known that adequate amounts of vitamin A are necessary to maintain the integrity of epithelial structures. When a deficiency of vitamin A exists stratification of the transitional epithelium of the bladder, ureters, and renal pelves occurs, and this change apparently favours the formation of calculi. As the calculi in these orthopaedic cases are found to consist of phosphates and carbonates of calcium and magnesium, it is important to prevent the precipitation of these salts. The urinary reaction should therefore be kept on the acid side (*p*H of 5 to 5.2) by an appropriate diet with a high vitamin content and, if necessary, also by the use of acidifying agents such as ammonium chloride. Details of suitable acid-forming and high vitamin diets are given in Higgins and Schlumberger's paper, which may profitably be consulted by those who have to treat these patients. It is important to examine the urine frequently in all recumbent orthopaedic cases, to give an appropriate diet, and, as a safeguard, to make an *x*-ray examination before their discharge from hospital in order to rule out the possibility of a silent renal calculus.

The King has nominated Sir Arthur MacNalty to be, for five years, a member of the General Council of Medical Education and Registration in the United Kingdom, in succession to Sir Henry Dale.

Queen Mary will open the new medical block, King George V. Building, at St. Bartholomew's Hospital on Thursday, July 8, at 3 p.m.

[1] *Arch. Surg.*, Chicago, 1937, **34**, 702.

WORK OF THE LISTER INSTITUTE

ANNUAL REPORT

The Lister Institute of Preventive Medicine published on June 2 its forty-third annual report reviewing the work done during the past year. The Governing Body records with regret the deaths of Professor E. H. Kettle, who had been a member since 1931, and of Dr. F. W. Alexander, who had been connected with the Institute for nearly forty years. We give here a short summary of some of the work recorded in the report, which may profitably be studied at greater length.

Virus Studies

Dr. M. H. Salaman has compared the serological properties of the elementary bodies of vaccinia virus with those of the soluble antigen of the virus which can pass through filters that retain the bodies. He has shown that the virus-neutralizing power of an anti-vaccinial serum can be removed by absorption with a sufficient dose of washed elementary bodies, but not by absorption even with large doses of the soluble antigen. Dr. Hurst, by passing the filterable virus of rabbit myxomatosis through the brains of rabbits for several generations has obtained a variant which, inoculated into skin areas, generally failed to produce death, though local and generalized lesions persisted. The discovery of this variant should facilitate research into the relation between myxoma and fibroma, as it will now be possible to study animals that have recovered from myxoma without having to give them the fibroma virus first. Sir John Ledingham has shown that animals infected with fibroma virus, and particularly with the "inflammatory" variant, develop agglutinins for myxoma but often little or none for fibroma until a dose of myxoma virus is given, when agglutinins for both appear in the serum.

Dr. C. R. Amies's further researches have confirmed the fact that fowls with a Rous sarcoma develop anti-bodies for the Rous No. 1 sarcoma agent, prepared by repeated high-speed centrifugation of cell-free tumour extracts. It was found, too, that the sera of rabbits hyper-immunized with normal fowl protein showed strong neutralizing activity against these purified suspensions of the Rous No. 1 agent. It would appear that fowl protein may be one of the antigenic constituents of the tumour agent.

Serological Studies

The work of Dr. A. Felix and Miss R. M. Pitt strengthens an earlier conclusion that only strains of *S. typhi* containing both "O" and "Vi" antigen possess the highest degree of virulence of which *S. typhi* is capable. Many attempts to prepare an antityphoid vaccine which would enable the "Vi" antigen to be preserved in its most effective form have been unsuccessful. With Dr. W. D. Nicol, Dr. Felix tested the antibody response of fifty persons who had been given subcutaneously three doses of an alcohol-killed typhoid vaccine. All those inoculated showed a marked increase in "O" antibody, and in half there was a significant increase in the "Vi" antibody. The results of an examination of sera from forty-five typhoid carriers suggest that "Vi" agglutination should have a definite place in the routine diagnosis of typhoid carriers. Each of the twenty-five strains from chronic typhoid carriers was found to contain "Vi" antigen.

Dr. P. A. Gorer, who with Dr. Schütze has been investigating the influence of genetic constitution on immunity and immune processes, found that sarcoma arising in a pure line of albino mice was transferable to all other members of the line and certain hybrids derived from it but not to unrelated mice. Those hybrids susceptible to grafts of the tumour possessed an antigen in their erythrocytes derived from the albino ancestors. In the absence of the antigen the tumour invariably regressed.

Endocrinology

One of the most remarkable properties of the sex hormones is that of stimulating the development of the sexual organs of both sexes in normal rats and bringing about a return of the atrophied organs of gonadectomized animals to, or towards, the normal condition. Dr. V. Korenchevsky, with Mrs. M. Dennison and Miss K. Hall, has studied the effect on male and female rats of various combinations of the male hormones trans-dehydroandrosterone and testosterone propionate and also of the probable intermediate compounds in the biological formation of sex hormones. The effect of various combinations of these hormones with oestrone was also investigated. They found testosterone propionate the most powerful of this group, and showed that in appropriate doses it brings about a return to the normal condition of the atrophied sexual organs in castrated male rats and a return to nearly normal weight of the sexual organs in ovariectomized rats. That these hormones are still essentially male, however, is shown by the fact that their restorative effect on all the sexual organs of the male rat is complete, whereas the complete effect was obtained in females only when testosterone propionate was administered simultaneously with the female hormone (oestrone). Complete recovery of all the atrophied sexual organs with oestrone alone was not possible. These results suggest a possible reason for the simultaneous presence of "male" and "female" hormones in the organism of either sex.

Unlike the other male hormones testosterone propionate continues to stimulate, though with a slowly decreasing action, the sexual organs for as long as nine days after the last injection. During this period it maintains its effect on the adrenals, while the katabolic effect, as shown by changes in body weight, even increases. This property is therapeutically valuable in that results can be obtained with injections as infrequent as once in ten or even perhaps fourteen days.

Professor P. Ellinger and Dr. A. Lambrechts, studying the localization of the glycosuric action of phloridzin, have shown that it interferes with the passage of certain substances from the lumen into the epithelium of the proximal tubules. The mechanism of this blockade has, however, not yet been ascertained.

Professor Ellinger, in collaboration with Dr. Dorothy Hare and Dr. S. Levy Simpson, has investigated the influence of the cerebro-spinal fluid of an acromegalic woman on the urinary chloride and water excretion of rabbits injected subcutaneously with the fluid and given water by the mouth simultaneously. A definite increased rate of chloride elimination resulted, but normal water diuresis was unaffected. Cerebro-spinal fluid from normal people and sera from the acromegalic patient and other control patients had no action either on chloride excretion or on diuresis. This effect was less after irradiation of the pituitary gland, which also produced clinical improvement. In control experiments a standard solution of pitressin had an anti-diuretic action and increased the rate of chloride excretion. It has not been possible to decide whether the anti-diuretic and chloride-eliminating effects are due to different hormones or whether the anti-diuretic action of the posterior lobe hormone was masked by that of some other substance in the spinal fluid of this patient.

Nutrition

A comparison of the results of biological and spectrographic estimations of vitamin A has been conducted by Miss Hume in order to obtain trustworthy figures for the conversion factor required for relation of the results of the biological and spectrographic tests and expression of the latter in international units. If certain reported discrepancies cannot be resolved it is possible that the spectrographic method will be abandoned and vitamin A standardization made to depend only on the biological test.

At the Department of Animal Pathology, Cambridge, Dr. H. Chick has collaborated with Dr. T. A. Birch and Sir Charles Martin in an investigation of the nutritive defects of maize. A diet containing over 80 per cent. ground whole white maize supplemented with peameal and a small amount of purified casein, extra salts, and cod-liver oil was given to young pigs. After about six weeks on this diet they lost weight, became anaemic, suffered from severe diarrhoea, and died unless the diet was changed. The disease was prevented if 4 per cent. yeast was included or if the maize was replaced by a mixture of wheat and barley; it was cured in a dramatic manner when yeast or an autoclaved protein-free yeast extract was added to the diet. These facts point to a deficiency in maize of some heat-stable constituent in the yeast extract—that is, some constituent of vitamin B_2. Dogs given the above diet develop the condition known as nutritional black tongue, which many believe to be analogous to human pellagra.

Miss A. M. Copping has continued the investigation begun by Dr. M. H. Roscoe in 1935, on the vitamin B_1 and B_2 contents of wholemeal flour and bread, and found them to be much greater than those of white flour and bread. The last two, however, proved unexpectedly rich in vitamin B_1, and the amount in the bread was not to be attributed to the added yeast since the values for the flour and the bread were equal. The content of flavine was low in both types of flour and bread, and the second constituent of the vitamin B_2 complex (so-called "vitamin B_6") was abundantly present in the wholemeal flour and bread but less in the white flour and bread.

Dr. T. F. Macrae and Miss C. E. Edgar have shown that aqueous yeast extracts contain two factors in addition to vitamin B_1 and lactoflavine necessary for the growth of rats. One of these factors is removed with lactoflavine from the yeast extracts by adsorption with fuller's earth in acid solution, while the other remains in the fuller's earth filtrate. The factor adsorbed by fuller's earth may be eluted with barium hydroxide. They have been working on the chemistry and purification of the factor which is not adsorbed by fuller's earth. The results obtained suggest that this vitamin may be quite distinct from vitamin B_6 as described by György.

Dr. S. S. Zilva has studied the relation of the intake of ascorbic acid to the vitamin C content of the "selective" organs and other tissues of guinea-pigs, to their susceptibility to scurvy, to the urinary excretion of ascorbic acid, and to their general well-being. He found that in order to attain the maximum concentration in the tissues ten times the protective dose had to be given. The accumulated vitamin C in the body of the guinea-pig does not act as a store in the true sense of the word. The results support the view that there is a wide margin of "unsaturation" with vitamin C which has no obvious detrimental effect on the health of the individual. Dr. Johnson found that guinea-pigs deprived of vitamin C did not develop cataract. The humours of the eye and the lens behaved like the selective tissues: the vitamin disappeared during dietetic depletion and reappeared in the original concentration when ascorbic acid was injected into the animals.

Biochemistry

Dr. A. R. Todd and Dr. F. Bergel have finally synthesized aneurin (vitamin B_1). The synthetic product was identified with the natural vitamin by chemical and biological methods, and synthesis of related compounds has been undertaken with a view to determination of the structural features essential for antineuritic activity. Dr. Todd has also done some preliminary work in an attempt to isolate the sterility factor in vitamin E in the unsaponifiable fraction of rice and oil.

Therapeutic Sera and Vaccines

Dr. W. T. J. Morgan has elaborated a method for the isolation of the antigen of *B. dysenteriae* Shiga and describes the antigen in its natural state as a polysaccharide-lipoid complex representing about 40 per cent. of the antigenic complex. The method he uses has been applied to other bacteria.

Dr. G. F. Petrie has confirmed the fact that an inoculum containing comparatively few living meningococci suspended in a solution of mucin is lethal to mice by intraperitoneal injection. The relative virulence of meningococcal strains can now be estimated without difficulty by means of the mucin technique.

Other work has seemed to show that the addition of 50 to 60 per cent. of glycerin to tetanus toxin has a remarkable stabilizing action on it, and within recent years the same principle has been extended to the toxin of *Cl. welchii* and to dysentery toxin (Shiga). Glycerinated preparations of this kind can be stored at −10° C.—a temperature which is not sufficient to freeze them, but which retards internal chemical and enzymic changes and thus inhibits destruction of the specific molecules. Further general work on the stability of therapeutic sera has been continued.

BRITISH ASSOCIATION OF RADIOLOGISTS

THIRD ANNUAL MEETING

The third annual meeting of the British Association of Radiologists was held in London on June 11 and 12 under the presidency of Professor J. M. WOODBURN MORISON. Two sessions were held, one of them devoted to radiotherapy and the other to radio-diagnosis, and both attracted large attendances.

A brief lecture on the after-care of patients suffering from breast cancer was delivered by Dr. F. HERNAMAN-JOHNSON. He described the objects of such after-care as being to keep the patient free from the external signs of the disease; to avert pain and discomfort; to prevent or delay the onset of metastases; to recognize and treat at the earliest possible moment any metastases that occur; and to ensure that the patient's psychological reactions are as normal as possible. In his experience the mental state of those who knew they were suffering from cancer was far better than those who merely suspected it. The patient to-day had a more philosophical outlook on life and death than his predecessors, and, of course, however depressing mortality statistics might be, they related to the average, not to the individual, and did not prevent the possibility of "miracles." He urged the creation of special after-care clinics for such cases in hospital districts.

Wave-length in Radiotherapy

The controversy regarding wave-length as a factor in radiotherapy was opened by Dr. G. F. STEBBING, who suggested that there was a selective action in rays of shorter wave-length (that is, rays having greater penetrating power). There was not only clinical but laboratory evidence to that effect. The distance, so to speak, between damage to the skin and damage to the growth was much greater with the short wave than with the long wave. He agreed that the selective action of the shorter waves was only one factor concerned, but it made a decisive difference in radio-resistant tumours.

Dr. J. H. DOUGLAS-WEBSTER took a different view. He regarded wave-length as one of the least important factors in radiotherapy. The evidence for selective action of the short wave was extremely tenuous. There was, of course, a better depth dose with higher voltage, but the same result could be obtained by using the tube at a greater distance. Differences in results were due to variations in intensity and time, not to wave-length as such. Dr. RALSTON PATERSON said that at the present time it was easier and more successful to treat cases with shorter wave-length, but more important than any specificity difference was the factor of skin reaction. The skin reaction, dose for dose, varied with difference of wave-length, but he believed that the effect was a physical not a biological one. If the skin had a greater tolerance for shorter wave-

lengths, the whole explanation of the clinical differences lay in that fact.

Low Voltage Near-distance X-Ray Therapy

Brief contributions were made by Professor WOODBURN MORISON, Dr. J. F. BROMLEY, and Dr. S. B. ADAMS on low-voltage near-distance *x*-ray therapy. Dr. Adams described results as elicited at the Royal Cancer Hospital, where the method had been employed for two years. The most suitable conditions for treatment by this method were skin cancer cases; very little intercavity work was done, cases of malignant disease of the tongue and tonsil being treated by "bomb" therapy. Certain nodular types of breast cancer were suitable, and among non-malignant conditions treated with success were boils, lupus, moles, and warts. Keloid scars responded well.

The second session was devoted to radio-diagnosis. Dr. E. LYSHOLM of Stockholm gave an address on experiences in ventriculography, based on over 600 cases submitted to this procedure, generally with lipiodol, and described the localization of the various brain tumours. It was explained that all the neuro-radiological work in Sweden was concentrated in one clinic, of which Dr. Lysholm had charge. Dr. H. W. A. POST read a paper on salpingography—the radiological examination of the uterus and Fallopian tubes by means of lipiodol or other iodized oil. Other papers were read by Dr. E. ROHAN WILLIAMS on urography in pregnancy, by Dr. H. M. WORTH on the use of lipiodol in the localization of spinal tumours, and by Dr. M. H. JUPE on cases of suprarenal tumour.

Annual Dinner

The annual dinner of the Association was held on June 11 under the presidency of Professor J. M. WOODBURN MORISON. In proposing the health of the Association Mr. S. J. WORSLEY, acting principal of the University of London, referred to the fact that the University had instituted what he thought was the only chair of radiology in this country—the one at present filled by Professor Morison. It had also instituted a diploma in radiology, a step not taken without some difficulty. It was inevitable that a university so placed in relation to medicine as London must take steps to put radiology on a proper footing. Already eight schools of the University were prepared to give instruction in some part of the course, though actually at present the burden was being borne by two. In 1936 twelve students passed the second part of the examination for the diploma—a small but promising beginning. Dr. R. M. BEATH of Belfast, in responding, thanked the members for making him president-elect, which he considered a tribute to Irish radiology. He referred to the sound work done by his three predecessors in the chair—Dr. F. J. Brailsford, one of the prime movers in the formation of the Association, and Dr. R. S. Paterson and Professor Woodburn Morison, who had guided it on sound lines. The main motive of the Association was the training and education of the radiologist. It was moving for a higher diploma, and hoped at some time to form a college of radiology.

Dr. R. E. ROBERTS proposed the health of the guests, who included Sir Cuthbert Wallace, President of the Royal College of Surgeons, Sir Walter Langdon-Brown, Mr. Rock Carling, Mr. Dickson Wright, and representatives of the *Lancet* and the *British Medical Journal*. Sir WALTER LANGDON-BROWN, in responding, suggested as a motto for radiologists the latter part of Burke's aphorism: "What shadows we pursue!" or St. Paul's, "Now we see through a glass darkly." He referred to the great differences which modern scientific apparatus had made in the practice of medicine, and recalled a remark of his old chief Samuel Gee: "Formerly the diagnosis of renal calculus required a good deal of skill; now it will require no skill at all, but at any rate we shall have certainty." Professor WOODBURN MORISON proposed the health of "Absent Friends," having in mind particularly that veteran radiologist, Mr. C. Thurstan Holland of Liverpool, who had written, "Doctor's orders must sometimes be obeyed, especially when one is not well enough to disobey them."

Reports of Societies

HYPERTHYROIDISM AND THE THYROTROPIC HORMONE OF THE PITUITARY

At a meeting of the Section of Therapeutics and Pharmacology of the Royal Society of Medicine on June 8, Dr. DOROTHY HARE presiding, Dr. ARNOLD LOESER of the Pharmacological Institute of the University of Freiburg addressed the meeting on "Hyperthyroidism and the Thyrotropic Hormone of the Pituitary."

In the first part of his lecture Dr. Loeser discussed the influence of the thyrotropic hormone of the pituitary on the thyroid and the effects of stimulation of the thyroid on the body in general. The hormone, he said, acted directly on the gland cells. It was inactive when given *per os* and was without effect upon growth or the sex glands. The hormone content of the pituitary varied considerably from species to species. The content of the anterior lobe (dry) in Junkmann-Schoeller units per gramme was as follows:

Ox	250-500
Rat	4,000-8,000
Pig	300
Horse	70
Man	150-1,000 per gramme in total dried gland

The thyrotropic hormone not only brought about a structural change in the thyroid but also effected the liberation of iodine-containing substance from the organ. In normal rats administration of the thyrotropic hormone raised the basal metabolic rate by about 26 per cent. A further consequence of the action of the hormone on the thyroid was a change in the carbohydrate metabolism, indicated by a diminution in the glycogen content of the liver (appearing in guinea-pigs about four days after administration). On administration of the hormone symptoms of hyperthyroidism were produced, but the maintenance of such symptoms or their progress to a permanent pathological condition was restricted by the temporary nature of the hormonal effect. All the changes except exophthalmos tended to disappear and a normal condition to return, or even a subnormal condition characteristic of hypophysectomized animals. Thus it was possible with the thyrotropic hormone to produce all the effects of hyperthyroidism, but not to maintain such effects completely, and to this fact was no doubt to be attributed disappointing clinical results.

The Anti-thyrotropic Substance

In addition to these regulatory processes a second factor might be present in which the pituitary played no part—namely, an anti-thyrotropic extract. Associated with the administration of the thyrotropic hormone a substance gradually appeared in the blood which worked against the hormone. The origin of this substance in the body was as yet unknown. It might be fairly definitely stated, as a result of various investigations, that it was not produced in the pituitary, thyroid, adrenals, or ovaries; therefore in the interests of clarity he preferred to use the indifferent term anti-thyrotropic principle or protective factor. He restricted the term hormone to a substance secreted by an endocrine gland and having as its main function to influence the activity of other organs.

His conclusions with regard to the anti-thyrotropic principle were, first, that the action of the inhibitory factor was not restricted to a type of specific immunity reaction; secondly, it was known that the inhibitory action of normal blood might after a certain period be increased by continued administration of the thyrotropic hormone, but this increase was possible only in the presence of thyroid and could not be obtained in the thyroidectomized animal; and, thirdly, the anti-thyrotropic principle was antagonistic only to the thyrotropic hormone.

The refractory development of the thyroid in hyperthyroidism, Dr. Loeser suggested, was an adaptation process by means of which the organism protected the thyroid against a thyrotropic hormone. This protective effect might be arrived at in two ways: first, by restriction on the formation of hormone in the pituitary, and, secondly, by the shutting off (encagement) of the thyroid from the effects of the hormone by the appearance of the anti-thyrotropic substances. The net result in both cases was the same. The activity of the thyroid was suppressed and over-secretion of thyroid hormone did not occur; in other words, the condition of hyperthyroidism was not produced. The refractory condition of the thyroid which, after a certain latent period, resulted from the administration of pituitary hormone could, however, be broken through by administering the pituitary hormone in progressively increasing quantities. Thereby the anatomical and functional symptoms of hyperthyroidism might not only be maintained but continually developed until death occurred. One action of the thyrotropic hormone, the production of degeneration and diffuse necrosis of the liver and kidneys, was only observed under the effect of progressively increasing hormone dosage. By continually raising the dosage the duration of the effect of the thyrotropic hormone could be extended, and the animals, in contrast to those receiving a constant dosage, could be maintained in a state of hyperthyroidism until death.

These observations led to the conclusion that by continually increasing the hormone dosage it was possible to break through all the safeguards which protected the thyroid against the thyrotropic hormone, and therefore the organism from a flood of thyroid secretion. The refractory condition of the thyroid which on a constant dosage of pituitary hormone set in rather rapidly might be overridden by continually raising the dosage. At least two ways were conceivable for the production of a continual state of hyperthyroidism: first, the continual animation of thyroid activity with the normal protective function of the organism still preserved, and, secondly, the failure of the protective function accompanied by a constant or increasing animation of thyroid activity. With these conceptions the condition of experimental hyperthyroidism with its related clinical counterpart, Basedow's disease, took on a new aspect, and with it the possibility of a causal therapy, as, for example, the administration of a highly active anti-thyrotropic factor, as worthy of consideration in certain cases.

Discussion

Dr. C. L. COPE said that the question arose whether the thyrotropic hormone had any place in the aetiology of primary Graves's disease. Was the hormone increased in amount in the circulating blood in cases of that disease? This might be expected in view of the physiological properties of the substance. If serum from a case of Graves's disease were taken and injected into the guinea-pig it was found, not to stimulate the gland in the same way as the patient's gland had been stimulated, but rather to produce a more resting state in the gland. So far from containing thyrotropic hormone it appeared to contain an anti-thyrotropic factor. This made it rather difficult to put forward the hormone as the immediate cause of the hyperplasia and over-activity of the gland in Graves's disease. Again, if this hormone were increased in the body, did it appear in the urine? Methods of concentrating any hormone that might be in the urine had been used in cases of Graves's disease, and in no case had there been any evidence of the presence of this hormone in the urine; rather the impression was that it was less in the urine of patients with Graves's disease than in that of normal individuals. There was an extraordinary lack of agreement as to whether or not the hormone was present in demonstrable amounts in the blood in this disease, but the balance of evidence was in favour of the view that if the hormone was there it was rather less in Graves's disease. American workers had suggested that it was increased in certain cases of myxoedema. Cases of myxoedema had not been easy to obtain untreated, but in two cases of spontaneous myxoedema there was no evidence of hormone in the serum. But they differed from the American ones in that they were spontaneous, whereas most of the American cases were the result of complete thyroidectomy. The evidence pointed to the behaviour of the pituitary in Graves's disease as, so to speak, the friend of man rather than his foe, and he had been quite unable to convince himself that the pituitary thyrotropic hormone was produced in excess in Graves's disease and that it was an aetiological factor in the disease.

Dr. RUSSELL BRAIN said that he had been particularly interested in those rather unusual patients who had exophthalmos associated with ophthalmoplegia. He thought they formed a class distinct from primary Graves's disease, but a point of special interest was that they fell into two groups: one consisting of spontaneous cases and the other a rarer group in which progressive exophthalmos and ophthalmoplegia developed in patients who had had a thyroidectomy done for primary hyperthyroidism. From a study of the experience with these cases the number showing a subnormal basal metabolic rate was greater (at least in one series) than the number showing an increased basal metabolic rate; and this linked up in an interesting way with other experiments showing that it was possible for the thyrotropic hormone to produce exophthalmos in fact more readily in animals in which the thyroid had been previously removed. He had not quite gathered whether Dr. Loeser believed that the exophthalmos was a separate symptom from the others and was due to the thyrotropic hormone rather than to hyperthyroidism strictly.

Dr. A. W. SPENCE said that he too had been unable to find any evidence of thyrotropic hormone in the serum of patients suffering from toxic goitre. He had had the opportunity of testing the serum of four or five patients with spontaneous myxoedema—that is, not those who had developed myxoedema as a result of thyroidectomy—and in these also he had been unable to find any evidence of the thyrotropic hormone. It appeared from the literature that these results were conflicting. In most of the cases of toxic goitre workers on this subject had found no evidence of thyrotoxic factor in the serum, but there were one or two cases in which they could definitely find such evidence, and there was a tendency to divide cases of Graves's disease into two groups, the larger being cases of primary hyperthyroidism without any primary pituitary involvement, and the smaller group cases primarily of hypersecretion by the anterior pituitary of thyrotoxic substance, and it was recommended that every case of Graves's disease should be examined from the point of view of secretion of thyrotropic hormone or the presence of such hormone in the serum. According to these workers, the pituitary cases should be treated by deep *x*-ray therapy to the pituitary, and good results were claimed in this small group of cases. The anti-thyrotropic factor was of considerable interest and might be used in the treatment of toxic goitre. He felt that the majority of cases of toxic goitre were due rather to an inability to form this substance than to an excessive production of thyrotropic hormone.

Dr. A. S. PARKES said that the term "anti-hormone," to which Dr. Loeser had taken exception, originated in Montreal. He was still not clear whether it was meant to imply a hormone which was "anti" something or something which was "anti" to a hormone. Most of them would agree that the anti-thyrotropic principle was "anti" to the hormone. His colleagues at Hampstead had been generally careful to refer only to the anti-thyrotropic serum, and never to an anti-thyrotropic "hormone." He wondered whether Dr. Loeser had tried out any immunological tests with the anti-serum. (Dr. LOESER indicated that he had not.) Again, in what proportion of normal sheep did he find demonstrable anti-thyrotropic activity in the untreated serum? (Dr. LOESER said that he could not answer that question.) Dr. Parkes said that with their more gross tests they had not been able to discover

in a series of half a dozen normal sheep the anti-thyrotropic activity which Dr. Loeser had described. He wondered whether anti-thyrotropic activity had any part to play in the normal animal in maintaining the endocrine balance.

DUAL PERSONALITY

Sir WALTER LANGDON-BROWN delivered the annual Cavendish Lecture under the auspices of the West London Medico-Chirurgical Society at Kensington Town Hall on June 3, entitling it "Dr. Jekyll diagnoses Mr. Hyde." Mr. NEIL SINCLAIR, president of the society, was in the chair.

After some entertaining literary reflections on Robert Louis Stevenson and others the lecturer discussed the medical approach to dual personality. To the inheritors of nineteenth century materialistic medicine it was not a welcome discovery that the psyche was a causal factor in disease. The Freudian attitude to the unconscious was perhaps apt to give it too dark and depressing an impression. The lecturer started, therefore, from a biological standpoint, as Rivers would have done. Structurally numerous vestiges of earlier evolutionary phases were to be recognized in the human body, and the human psyche from this point of view was likewise a product of evolution which showed many archaic features. Rivers did not accept Freud's conception of a censorship; he regarded the fantastic and symbolic forms in which hysteria and dreams manifested themselves as a regression to a lower level which was natural to the infantile stages of human development, individual or collective. We reached the higher levels of our nervous system on the stepping-stones not only of our dead selves but of our long-dead ancestors. The lecturer could not doubt that medicine would have to become increasingly psychological in its approach. The new psychology was a compromise, a selection from the doctrines of different schools, but it was the needs of the present time which had led to its development. If some academic psychologists scoffed at it the simple reply could be made that it worked. Although it was only in its infancy its influence was overflowing beyond the confines of medicine into many other fields of thought, just as did Darwin's exposition of the principle of evolution. A compact body of well-informed medical opinion on the subject could be a much-needed educative influence in a world which seemed to be steadily growing more psychologically sick.

At the present time, added Sir Walter Langdon-Brown, the darker side of the collective unconscious was assuming a volcanic energy. If it was not to prevail they must live up to the Greek maxim, "Know thyself," or Caliban would reconquer the island he inherited from Sycorax his mother. "Dr. Jekyll must diagnose Mr. Hyde by recognizing his origin. Am I too optimistic in hoping that the profession to which Jekyll belonged can by psychological insight play an important part in leading the way to a calmer, humaner, and more rational world?"

The inquiry into the physical, psychological, and genetic aspects of mental deficiency carried on in the research department of the Royal Eastern Counties' Institution at Colchester has received valuable aid from the trustees of the Rockefeller Foundation. Hitherto the research department, under Dr. Lionel Penrose, has been financed by the Medical Research Council, the Darwin Trust, and by the institution itself. Recently also a generous donation of £2,200 was made by the Hon. Alexandrina Peckover towards the cost of a new laboratory and research offices provided by the institution. Now the trustees of the Rockefeller Foundation have opened the way to further developments by making a grant at the rate of £600 per annum for five years to provide additional research workers and a non-recurrent grant of £700 towards the cost of laboratory equipment.

Local News

SCOTLAND

St. Andrews University

At a meeting of the University Court of St. Andrews University, Principal Sir James C. Irvine presiding, Dr. H. E. Hutchison, lecturer in clinical pathology in the University, was appointed to be warden of the William Low Residence for medical students in Dundee. This residence will be opened for medical students attending clinical courses from the beginning of October next. The Court has agreed to recognize Mayfield Hospital, Dundee, as a general hospital in which clinical courses qualifying for the degree of M.B., Ch.B. may be attended by medical students of the University. The new ordinance for the establishment of degrees of Bachelor of Dental Surgery and Master of Dental Surgery will come into effect from the beginning of the academic year 1937–8. The course for the B.D.S. will be five years, of which four will embrace studies similar to those for the L.D.S. of the University, but the examinations will be of a higher standard, and there will be an extra examination at the end of the fifth year. Those who have taken the B.D.S. may proceed to the M.D.S. after one year in practice as a dental surgeon, or after holding a post in a dental hospital and submitting to a clinical examination and presenting a thesis.

Edinburgh Hospital for Sick Children

The work of the Edinburgh Hospital for Sick Children is steadily increasing, 100 more cases having been treated in the wards in 1936 than in 1935, while the out-patient work has also increased. This has necessitated further nursing staff, and to accommodate the extra nurses a house in the neighbourhood has been purchased. The home presented by Lord Forteviot last year has enabled 100 infants to be transferred from the hospital to the home, and this has greatly facilitated the work of the hospital. The report for 1936, which was presented at the annual meeting of contributors on June 10, shows that the number of cases treated during the year was 3,267, of which 1,308 were medical, 1,250 surgical, and 682 ear and throat cases. The average daily number of patients was 132, and the average duration of residence 15.5 days. At the out-patient department there were over 29,000 attendances, and in the sunlight department 5,616 treatments were given, compared with 4,861 in the preceding year. The ordinary income for the year was £16,304, compared with £14,847 in 1935, while the ordinary expenditure was £20,699. The deficit was less than in the previous year, amounting to £4,395, as compared with £4,590. There was also a deficit of ordinary income amounting to £318 on the Muirfield Convalescent Home, and a surplus of £144 on the Forteviot Convalescent Home.

Astley Ainslie Institution

The report of the Astley Ainslie Institution for the year 1936 by Lieut.-Colonel John Cunningham, medical superintendent of the institution, shows that the number of beds is now 169. The Departmental Committee on Scottish Health Services gave a summary in its report of the methods and policy adopted at this institution as illustrating the lines along which modern ideas of convalescence are developing. This institution, being fully endowed, does not appeal to the public for support, and it only admits patients from the Royal Infirmary of Edinburgh requiring a prolonged convalescence. The total number of patients treated during the year was 1,077, including 221 children. The majority of the patients, 749, were either cured or improved; only twenty were dis-

charged without any change in their condition, while 120 were sent back to the Royal Infirmary for further treatment. The maintenance cost per bed for the year was £151. The institution possesses a fully equipped department for physical therapy by massage, artificial sunlight, and various forms of electrical treatment. A special feature of the institution is the department for occupational therapy, which was opened in May, 1936, and which is one of the first of this kind in the country to be designed in connexion with a general hospital. This building is single-storied and consists of a central section with two large wings containing the main workshops, one being allotted to "quiet" crafts such as weaving, painting, basketry, etc., and the other to "noisy" crafts such as carpentry and metal work. Large windows form the greater part of the wall area of the main workshops to provide adequate lighting and to enable the patients to work under what amounts to open-air conditions. The workshops are fully equipped with the apparatus necessary for various crafts, such as saws and lathes specially designed to assist in the treatment of patients showing orthopaedic disabilities. Great success has attended this form of therapy and its extension to patients confined to bed in the wards. For male patients confined to bed, rug-making, basketry, painting, wood carving, leather work, and weaving with small looms have all been found suitable, while needlework in its various forms and knitting are most popular in the women's pavilions. Occupational classes for both men and women are conducted in the workshops, the men attending for two hours in the morning and women for two hours in the afternoon. The number of patients who underwent this form of training and treatment during the year was 658.

ENGLAND AND WALES

The Harveian Society

The Buckston Browne dinner of the Harveian Society of London was held this year in the Connaught Rooms, Great Queen Street, on June 10, with the president, Dr. A. H. Douthwaite, in the chair. The principal toast, that of the Harveian Society, was proposed by the Lord Chief Justice of England, Lord Hewart, who told a number of stories, and after some banter at the expense of the medical profession paid its members a compliment by saying, "When you meet the Recording Angel you will have a pretty easy time." Dr. Douthwaite, in his reply, thanked Lord Hewart for honouring the Society by attending its banquet, and recalled that it was he who publicly pointed out that if the Osteopaths Bill became law osteopaths would have the right to sign death certificates. Briefly reviewing the events of the past year Dr. Douthwaite said that the Society had now almost succeeded in paying its quota towards the restoration of Harvey's tower at Hempstead; it had moved into new quarters in Portland Place; and Dr. G. de Bec Turtle had presented a snuff box on giving up the treasurership after ten years of enthusiastic work. Though this was against orders the president ended with an acknowledgement to Sir Buckston Browne for his generosity in providing the banquet. The health of the visitors was proposed by Mr. M. F. Nicholls, who congratulated Mr. H. L. Eason, Vice-Chancellor of the University of London, on his appointment as Principal of the University, and welcomed Sir John Herbert Parsons, president of the Royal Society of Medicine, Sir William Willcox, president of the Medical Society of London, and Mr. D. C. Norris, president of the Hunterian Society. The toast was acknowledged by Mr. Eason, Mr. Ernest Bevin, and Mr. Derek Curtis-Bennett. Mr. Bevin expressed his pleasure at dining "in good trade union company" with representatives of the Law, the Church, and Medicine. He spoke in warm terms of recent discussions between the Trades Union Congress and the British Medical Association, and the good that must follow this contact in promoting the medical treatment of workpeople on sound lines. Co-operation was needed between the medical profession and industry, so that the problems that arose from the conditions of modern life might be tackled at an early stage. To-day there was a great opportunity for breaking down barriers; hitherto there had been too long a lag in the application to practice of the fruits of discovery; more collaboration would secure better results from the medical services. A bad defect in the national health insurance scheme was its failure to include women and children.

Manson and Ross Commemoration

The Board of Management of the London School of Hygiene and Tropical Medicine and the Standing Committee of the Ross Institute of Tropical Hygiene held a reception at the School on June 9 to meet the Earl of Athlone, K.G., Chancellor of the University of London. The guests, many of whom were medical visitors from over-seas, were received in the library by Lord Athlone and Professor W. W. Jameson, Dean of the School. In the museum on the second floor Professor R. T. Leiper and Dr. B. G. Peters exhibited living fresh-water snails, water fleas, and other crustacea, and fishes concerned in the transmission of disease in the Tropics; examples of diseased conditions caused by helminth parasites, and microscopical preparations of stages in the life-histories of parasites causing tropical diseases. Professor P. A. Buxton and Mr. Leeson also exhibited live insects of medical interest. In the museum on the third floor a collection of original notebooks and other material relating to Sir Patrick Manson and Sir Ronald Ross were displayed. Dr. G. P. Crowden demonstrated an air-conditioned cubicle for use in the Tropics; and other demonstrations concerned with warmth and comfort measurements and standards for factories and shops, and the use of reinforced aluminium foil for insulation against radiant heat were given by Dr. T. Bedford, Dr. Crowden, and Mr. Luxton. In the lighting laboratory Mr. T. C. Angus showed methods of lighting and ventilation in factories, and a method of controlling dust hazards in industry.

New Essex Hospital for Nervous and Mental Diseases

The Minister of Health (Sir Kingsley Wood) on June 14 opened the Runwell Hospital near Wickford in Essex to serve as a joint hospital for nervous and mental cases for the county boroughs of Southend-on-Sea and East Ham. The new hospital is on a pleasant country site of 500 acres, about twenty-four miles from East Ham and twelve from Southend, and in its arrangement advantage has been fully taken of new ideas and experience in mental hospital planning and construction. It is intended to house just over 1,000 patients, and it comprises from twenty-five to thirty separate units. In the central administration unit, in addition to the usual offices, there are a recreation hall with a fully equipped stage and modern cinema projector, a gymnasium, a lecture theatre, a library for patients and staff, as well as kitchens and bakery. At the side of this are separate occupational therapy workshops for male and female patients. Provision has been made for teaching numerous handicrafts, such as rug-making, basketry, weaving, beadwork, pottery, and embroidery, and in addition there are special shops for upholstery, printing, tailoring, boot repairing, metal work, and carpentry. The admission hospital is a pleasant single-storied building on the outskirts of the colony, built so as to be light, sunny, and airy, with plenty of veranda and solarium accommodation. In the centre portion of this building are housed the *x*-ray and light departments, the pathological and biochemical research laboratories, the laboratories of experimental psychology and clinical pathology, and a modern hydrotherapeutic department. A large common room for both sexes is also provided here, with facilities

for recreation and occupational therapy. The admission hospital includes clinical examination rooms where newly admitted patients are first seen by the resident physicians, and male and female wards in the east and west wings. Two other separate buildings have been provided for voluntary patients, one for men and one for women, suffering from the milder forms of nervous disorder. These are really detached single-storied villas, with a large number of private bedrooms, most of them opening directly on to a terrace, as well as homelike sitting rooms with french windows. Another single-storied building, consisting of a central block and two wings, serves as a sick hospital for patients suffering from physical complaints. Units for quiet and employable patients are arranged on either side of the administration building, and surrounding these are large gardens with room for exercise and recreation. There are three parole units for patients who do not require much supervision and are able to enjoy a considerable freedom within and without the grounds of the hospital; and in a detached position, well away from the main blocks, is Boundary House, accommodating sixty male and 100 female patients suffering from the more severe forms of mental disorder, with clinical rooms and a hydrotherapy department. The old idea of a "refractory block" has been dispelled in this pleasant building.

Correspondence

Moynihan Memorial

SIR,—The Board of the General Infirmary at Leeds realize that the greatest memorial to the genius and work of the late Lord Moynihan must always be advancement in the art of surgery, which he did so much to promote. They feel, however, that it is their duty and privilege to perpetuate a record of Lord Moynihan's work for surgery and his labours in and for the General Infirmary at Leeds by the erection within its walls of a suitable memorial. Already a ward has been named the "Moynihan Ward," but much more than this is clearly required.

The Board have appointed a committee to submit and carry out a suitable scheme, and on behalf of this committee I am able to state that the sum of £750 has already been received. More than this is needed if the memorial is to be adequate, and I am authorized to invite subscriptions from medical and lay sympathizers. It is suggested that one guinea would be a suitable amount, though more or less would be very acceptable. Subscriptions should be forwarded to the General Infirmary at Leeds in the name of the "Moynihan Memorial Fund" or to myself. They will all be very gratefully acknowledged.—I am, etc.,

CARLTON OLDFIELD,
Leeds, June 14. Chairman, Moynihan Memorial Committee.

Infectious Mononucleosis and Monocytic Leukaemia

SIR,—May I refer to a point in Dr. M. C. G. Israël's article on infectious mononucleosis and monocytic leukaemia (*Journal*, March 20, p. 601). He states that "haemorrhage of any sort is rare in infectious mononucleosis." In general this is correct, but epistaxis is not uncommon among children, and in extensive outbreaks at schools there are usually one or two severe cases. I have known it to be sufficiently serious to warrant blood transfusion. Haematuria is a traditional feature which was mentioned by Heubner in the discussion on Pfeiffer's original communication. It is certainly rare, but I have seen several cases in which it was the first recognized manifestation, and it may occur with a definite lymphocytosis but no glandular enlargement.

Dr. Israël's second case was admitted to hospital for haemorrhage from the rectum. I saw a similar case in 1921 shortly after the recognition of mononucleosis in glandular fever. I have never seen another and so far as I am aware there is no other case in the literature.

May I perhaps mention that Türk spelt his name without a "c." He was a man of great personality and objected to the misspelling, especially as German authors nearly always made this mistake.

There has been a fair amount of glandular fever among adults this year.—I am, etc.,

London, W.1., June 7. H. LETHEBY TIDY.

Milk-borne Scarlet Fever in Doncaster

SIR,—May I, who was responsible for the preventive measures at the farm, add to Dr. R. Watson's account of the Doncaster outbreak of scarlet fever published in the *Journal* of June 12 (p. 1189).

In the first place it should be made clear that the whole occurrence was accidental, and caused by a missed case of scarlet fever. On December 14, two days after discovering the milker's sore throat, I found his daughter suffering from suppurative otitis media, the parents being unaware of the nature of the ailment on account of the absence of rash. The thick purulent discharge had been treated by the father since December 2. The mammary ducts of the cow's udder must have been infected by the hands of the milker, and his hands were infected from his daughter's ear discharge or from his own throat. If his hands were so infective as to cause a mastitis in the cow I cannot understand why the infection was unlikely to reach the milk from the same source before December 12.

Mr. Canning, assistant county veterinary officer, West Riding, who took the group samples on December 15, reported no evidence of mastitis. On December 20 he was able to identify the infected cow from a group, so evident were the signs of mastitis, and I was able to isolate the cow. Although it is obvious that the cow must have been infecting the milk supply between December 12 and 15 I cannot believe that the udder was infectious as early as December 6 or 7. If so much progress was made by the local lesion between December 15 and 20 why was so little made between December 6 and 15?

The evidence seems to favour very strongly the view that the milk was contaminated by the milker in the earlier stages of the outbreak and that the infection was continued later by the cow.—I am, etc.,

A. PENMAN,
June 12. M.O.H. Doncaster Rural District.

Blood Transfusion in Obstetrics

SIR,—With reference to the letter in the *Journal* of June 5 (p. 1176) by Dr. E. K. Mackenzie, replying to Dr. Owen-Jones's letter (May 22, p. 1090), I would heartily endorse Dr. Owen-Jones's method of dealing with the third stage of labour. That method of leaving the uterus unattended during the third stage has been strictly adhered to for the past four years in this institution, and the cases of post-partum haemorrhage are less than 1 per cent. The results obtained have justified its continuance, as during the last four years over 5,000 cases of confinement have been attended. There are two ideas underlying this technique.

1. The uterus, being exhausted during the first two stages, requires a period of rest before the expulsion of the placenta; to stimulate the uterus at this time is like the proverbial last straw, causing the uterine muscle to relax whenever the grasp is released.

2. There is the temptation every now and again while the fundus is being held by the attendant to attempt to expel the placenta prematurely, resulting often in the discharge of blood clot; and when the uterus, after being pressed in this manner, assumes its normal position it sucks up from the vagina septic material into a potentially sterile cavity.

I am rather surprised at Dr. Mackenzie's large percentage of cases of post-partum haemorrhage and the immediate results obtained by the use of femergin and coramine. Such simple medication has not been sufficient in most of our cases to "quickly put the patient right," as more often we have to resort to intravenous gum saline or to blood transfusion. Furthermore, it is my opinion that those methods of dilatation of the vulval outlet and of the cervix shortly before completion of the first stage cannot be too strongly condemned. In this institution vaginal examinations are never permitted after labour has begun unless there are obvious complications.

As regards the anaesthetic, I find that nitrous oxide gas or even ethyl chloride are preferable to the administration of chloroform, and the apparatus supplied by the British Oxygen Company for the administration of nitrous oxide would be of great use to the general practitioner for any obstetrical complication that he has to deal with in the course of his practice.

It would also appear that the manual removal of the placenta twenty-seven times in a series of 1,279 cases seems to be a large percentage in the work of a general practitioner. I am of opinion that in obstetric practice it is best to leave things to nature when the patient's condition, temperature, and pulse remain normal. A patient should be examined abdominally, and the obstetrician should obtain sufficient knowledge as regards disproportion, delay in labour, or of the satisfactory progress thereof. I agree that ante-natal examination is of first importance, but this is not always possible in hospital or general practice.—I am, etc.,

County Maternity Hospital, Bellshill, June 8. H. J. THOMSON.

Treatment of Hernia

SIR,—In associating myself with the remarks of Mr. Delisle Gray in your issue of June 12—in which he suggests that opposition to the injection treatment is due to a complete misconception of its aims, effects and results—I would like to make a further comment on your leading article of June 5.

The term "sclerosing," which can properly be applied to the old phenol injections, which relied for their effect on destruction of tissue resulting in scar formation, is not applicable to most of the fluids in present use, and certainly not to that of the late Dr. Enrique Pina, whose fluid I am using. This is "proliferating," in that it causes an exudate, which becomes progressively granulation and fibrous tissue, and is not formed by destruction, or necrosis, of adjacent structures, but results in a net gain, of new tissue, to the area. This is well demonstrated in recurrent hernia, where the injections fill up cavities, and repair deficiencies in the body wall. It has also been demonstrated by microscopical examination of injected tissues.—I am, etc.,

London, W.1., June 12. E. W. ARCHER.

Carcinoma of the Oesophagus

SIR,—I should like to endorse Mr. Tilley's opinion as expressed in his article on carcinoma of the oesophagus treated by *x*-ray therapy. With the modern method of treatment there does seem a little more hope than formerly. In a small series of cases treated at University College Hospital of carcinoma of the "middle third" of the oesophagus, proved by oesophagoscopy and biopsy, the longest survival is over three years (May, 1934). This patient was sent to me by Miss D. J. Collier. Treatment was followed by an increase in weight of 4 st. The patient can now eat anything she wishes, leads a normal life, and radiologically shows so far no signs of recurrence.—I am, etc.,

London, W.C., June 15. E. L. G. HILTON, Radiotherapist, University College Hospital.

Streptocide for Streptococcal Empyema

SIR,—The report of Dr. James L. Brown in the *Journal* of June 5 (p. 1157) regarding the treatment of streptococcal empyema with prontosil prompts me to give my experience with a similar drug in similar cases.

A man aged 26 years was admitted to the Thornton Isolation Hospital on March 26, 1937, with influenzal pneumonia of ten days' duration. On admission he was extremely ill, with severe dyspnoea and cyanosis; his temperature was 103°, pulse rate 130, and respiratory rate 56. There were obvious signs of fluid in the right pleural cavity, and on aspiration 18 oz. of thin purulent fluid were withdrawn. Culture of the fluid gave a pure growth of haemolytic streptococci. Streptocide, 1/2 gramme, was given four-hourly by mouth. Aspiration was repeated on March 28 and again on April 2, and 2 oz. of thin pus were withdrawn on each occasion. Clinically he continued to improve, and on April 10 no fluid could be obtained by aspiration. There were now only signs of thickening of the pleura. His general condition gradually improved, and by April 20 his temperature, pulse, and respirations were normal. A final paracentesis was done on May 1 with a negative result. He was discharged in a fit condition on May 17. This patient had oral medication only, and no operative procedure beyond aspiration of the chest. Hydrochloric acid dil. 10 minims three times a day was given with the streptocide.

A comparable case treated in January was given proseptasine 1/4 gramme three times a day, with no hydrochloric acid dil., and though his temperature, pulse, and respiration returned to normal rib resection had to be carried out to evacuate thick pus from the pleural cavity.

It would appear that large doses of the sulphonamide drugs by mouth may achieve the result obtained by Dr. Brown with intrapleural therapy. In order to assess accurately the value of the sulphonamide drugs in streptococcal empyema in adults it would be necessary to know what percentage, if any, of those cases cleared up with repeated aspiration and without recourse to rib resection before prontosil was used for streptococcal infections.—I am, etc.,

Fife, June 7. JAMES B. FLEMING, M.B., Ch.B.

Enuresis in Children

SIR,—Dr. McGregor's contribution on enuresis (*Journal*, May 22, p. 1061) is very valuable, and any correspondence which suggests help in this sometimes almost incurable condition may be useful. I therefore venture to suggest the influence that quite ordinary articles of diet may have, as I have not hitherto seen this mentioned.

For example, a mother consulted me on troublesome enuresis in a 3-year-old child who was otherwise normal; the child was being given "groats" as a tea-supper dish, and omission of this instantly cured the trouble. Similarly,

barley and barley-water preparations may be responsible for puppy-like frequency of puddles by day or night, according to the time of administration.

Another particularly interesting case occurred in a girl aged 7. In this case "psychoiogy" might have been blamed (she had lost her mother) or slight babyhood habits of masturbation. All the treatment prescribed by her own father—an experienced general practitioner and a patient and affectionate observer of his own children—and various eminent children's specialists was of no avail, but she was cured by the simple observation of the housekeeper that the child was always worse if she went out to tea or was given cow's milk for supper at home. Elimination of cow's milk from the diet cured the enuresis completely and immediately. At about 9 years of age the child was sent to boarding-school, with instructions that milk was not to be given after midday. All went well, but in a later term there was complaint of enuresis, and it was found that cow's milk had been given at tea time. Correction of this mistake again immediately effected a cure.

The fact that for some years this child drank goat's instead of cow's milk (which was "tuberculin" suspect in the district) may have contributed to this sensitivity to cow's milk, but these two instances suggest that the ordinary routine of habits and diet may be usefully investigated in cases of enuresis.—I am, etc.,

London, W.1, June 7. D. C. LOGAN.

Health and Milk Supply of Malta

SIR,—While I fully agree with the statement of Dr. Arbour Stephens (June 5, p. 1179) that the infant mortality in Malta is high enough to call for action, I cannot substantiate fully his views on the cause or causes of this extraordinarily high death rate, which has been persistently over 250 per 1,000 for years. The following are the facts.

1. Early marriages are the rule.

2. Large families and frequent pregnancies are also the rule, especially in the depressed classes.

3. The milk in Malta is largely obtained from goats because there is not sufficient pasture for the cow.

4. The dry season lasts generally throughout the best part of six months—April to September. During this period the temperature rises rapidly to 80° to 85° F., but winds prevail except during the month of July.

5. Condensed milk, often sweetened and of inferior quality, is very often looked upon with favour by the lowest classes, who may substitute it entirely for fresh milk.

6. This habit has established itself largely because of the ban on fresh milk from all sources imposed by the naval and military authorities for use by soldiers and sailors ever since the discovery of *Brucella melitensis* and the report of the Royal Commission that followed.

7. Undulant fever is rampant among the civil population (up to 5 per 1,000 of the population get this fever in the course of the year). But cases of infection are practically unknown under 5 years of age. Concurrently with the human infection a similar infection occurs in goats (up to 15 per 1,000 in some herds), though the goat is often apparently sound and its yield of milk unaffected.

8. The chief period of infant mortality coincides with the dry, hot, and windy season of the year; but the dominant affections are gastro-intestinal, not respiratory or circulatory. The same period coincides with the appearance of the housefly in vast numbers.

9. In spite of repeated periodical warnings issued by the public health department to boil all fresh milk before use, the incidence of undulant fever among the adult population, and of intestinal infections with a high mortality in infants, has not been appreciably reduced.

10. Goats are seldom fed on imported foodstuffs, and fresh green vegetables in considerable variety are available for animals and human beings in sufficient quantities throughout the year, with the exception that grazing is absent almost everywhere during the long dry season.

11. The methods of efficiently combating the growing social danger of undulant fever have preoccupied the Government of Malta for years; but apathy and prejudice even to passive resistance on the part of a considerable section of the community and the vested interests of the goat owner and milk vendor have proved insurmountable until the last few months.

12. Effective steps have at last been taken after a strenuous campaign for clean and safe milk, largely conducted by a few medical men in the lay press. It was pointed out that fresh milk has a food value infinitely superior to the tinned article, and that all that was required was to make it safe for all without enhancing its cost price. This could only be undertaken by the Government. Accordingly, pasteurization on a large scale by the holder method has been decided upon, while special researches are being undertaken with a view to discovering efficient goat vaccine against brucella infection. All the goats will gradually be rounded up and their free circulation in the public thoroughfares will no longer be possible. This experiment in social and communal hygiene, which will cost the Government an initial outlay of nearly £50,000, will be watched with the keenest interest not only in Malta but throughout the Empire.

—I am, etc.,

Fowey, June 6. J. E. H. GATT, M.R.C.P., D.P.H.

Air Raid Precautions

SIR,—We should object to the popularization of air drill not because, as Dr. Macdonald Ladell says, "it accustoms the public mind to the idea that war is inevitable," but because it accustoms the public mind to the idea that the dangers can be materially lessened by gas masks and such devices. I agree with both Drs. Ladell and Leys that all attempted precautions against bombing are futile, but, unlike these gentlemen, I believe that, in view of the armaments race now in progress, war is indeed inevitable, and that therefore it behoves the public to begin to do something about it.

Dr. Ladell quotes Coué, and there is an idea among some pacifists that Couéism will see us through; that all we have to do is to "think" there will be no war—and there will not be. The public, however, will be ere long called on to think more constructively than this. And first let them cease from blaming their governments. The governments are doing their very best to stop war, and obviously they cannot manage it. War is coming.

Is it not a strange thing that neither the medical profession as a whole, nor yet the official heads of the profession, have the slightest contribution to offer? They merely put themselves humbly under the direction of a government department. And yet elementary common sense indicates that the supreme problem in air raids on cities will not be one of fighting fires, of neutralizing gases, or of "rushing" the injured to hospitals. It will be a psychological problem. There will be universal panic in cities, and the inhabitants who are not killed outright will stampede towards the country. Nothing will stop them. Appeals to a drowning man to cease breathing for patriotic reasons, or for the sake of the "women and children," leave him cold. There are such things as elementary instincts, and in such a case as this that of self-preservation will come first. Has the medical profession, then, nothing to say about this, which will be a supremely psychological problem? Have the Freudians, the Adlerians, the Jungians, the psychiatrists, the neurologists, *et hoc genus omne*, nothing more to advise than that if the worst comes to the worst we must "keep cool" and be guided by the police?

Let me end with one suggestion, a personal one. World war is the inevitable nemesis of world-wide mechanization of the individual—that is, of world-wide bureaucratization. This last is also inevitable in the life of big cities.

Hence the destruction of civilization (of which war is but the final stage) can only be stopped by stopping the conditions which give rise to bureaucratization and the destruction of individuality. In other words, we must reverse the modern drift from country to town. *Obsta principiis.* If this be a true reading, then why should we wait? Why should not the medical faculty, which professes to know something about psychology, take a lead, instead of sitting dumb like the rest? A drastic cure, it will be objected. Yes, but world war is going to be unutterably more drastic. Do not let us dope ourselves any longer. Let the trek to the land be initiated now, and by the medical profession.—I am, etc.,

North Queensferry, Fife, June 6. A. J. BROCK.

SIR,—It is strange to find that some medical men who are keen on the prevention of disease do not seem keen on the prevention of casualties due to air raids. Not for one moment is it maintained that even if intensive training in air raid precautions were adopted there would be *no* casualties, but it is certain that they could be greatly minimized both as regards mortality and disablement. There is no doubt that the casualties due to high explosive would be heavy, but we could save many by education in the principles of air raid precaution. As to the "gas" casualties, they might be almost negligible if doctors and the general public knew what steps to take to prevent their becoming casualties; and, incidentally, if an enemy knew that a nation was trained in precautions the use of gas would be less likely.

Three types of respirator have been *proved* to be 100 per cent. effective in protecting the eyes and lungs against any type of gas known or likely to be used in warfare, and the number and character of gases suitable for this purpose are limited for various reasons. The effects of vesicant gases on the body could be largely prevented by efficient attention at first-aid and decontamination stations if this treatment were given early. That training in air raid precaution is war-mongering seems a peculiar attitude to take; if it is necessary to have an army, navy, and air force, surely it is equally necessary to take any possible steps to protect the general public, as in any future war the public would be attacked. Some medical men do not appear to realize that the method of dealing with gas casualties, especially those due to liquid mustard gas, requires special study.

The attitude of one of your correspondents, Dr. R. M. Ladell (June 5, p. 1179), who states that he refuses to take part in air raid precautions, is surely not the correct one for members of our profession. In a railway accident he would not refuse to attend to an injured locomotive driver, even if he were the cause of the accident, and equally in an air raid, even if he considered that his own country were to blame for the war, he would willingly attend to any casualties; but does he realize that if he does not study the subject of air raid precautions he would speedily become a casualty himself if the raid were accompanied by mustard gas, and thus throw an additional burden on the already overburdened first aid services?

It is manifestly our duty as citizens to do all in our power to prevent war, but considering that all other important countries are taking precautions and therefore believe that they are of some use, we should surely do our best to at least diminish the effects of an air raid in the event of our being involved in such a ghastly calamity.—I am, etc.,

S. B. TURNER.

Air Raid Precautions Department, the Venerable Order of the Hospital of St. John of Jerusalem, Cardiff, June 14.

Gas Lectures, Economics, and War

SIR,—Dr. Leys and Dr. Ladell have hinted at a truth about war which does not seem to be generally recognized—namely, that the populace is not naturally warlike, and can only be made so by strenuous efforts on the part of statesmen and those professional speakers whom they can enlist, such as gas lecturers and frank adventurers of the Bottomley type. This was brought home to me during the late war, when fiery sermons at home contrasted oddly with the spirit of junior officers and men in the trenches who were just "fed up" and wanted to go home; there were no ideals left by 1916, and it is sheer humbug to pretend that the average man cared a damn what the peace terms were so long as he got peace.

International hatred is an artificial product which can only be kept alive by propaganda—that is, by suppressing the truth. International hatred has to be carefully tended or it dies out; there were serious signs of this happening on the Western Front at Christmas, 1914, and the higher command on both sides had to assert themselves in order to prevent the war petering out from the fraternization of Tommy and Fritz.

War fever is used by statesmen as a substitution symptom for the social unrest and revolutionary tendencies due to the pangs of poverty and malnutrition: and those States in which these diseases are worst tend to be the most warlike. That is why in England, where we have only a million and a half unemployed and where only a third of the population is starving, we are not so aggressive as other countries, in which even the middle classes have to go without butter. In every modern State there is a danger of revolution, owing to the dissatisfaction of a big fraction of the population with their economic lot. In England it is much less than in most other countries, because the economic conditions are much less bad.

Poverty and uncongenial working conditions are the cause of social unrest, and so indirectly of war; for war is the only certain remedy for poverty. That is because poverty in the modern world is due to lack of money, and not to lack of goods. If there are too many goods for the money available the goods are destroyed and their production is restricted: but war cures this by the simple process of borrowing money and paying it as wages to the unemployed for making guns and poison gas. These men are then able to buy the potatoes which would otherwise have been fed to the pigs, and the fruit which would have been allowed to rot under the trees, as it did last year; and the farmer makes a profit instead of a loss; in fact the whole community becomes more prosperous.

War preparations are already bringing about this happy state of affairs; unemployment is declining, and there is far less destruction of food than there was a few years ago. So gas lectures, by persuading people that war preparations are necessary, are actually helping Europe to achieve a higher standard of living than would otherwise be possible; and are thereby staving off revolution.

I do not want it to be thought that I am advocating war; but under the present financial system it seems inevitable. If rearmament were to cease now there would almost certainly be a slump; employment would diminish, and with it purchasing power; and large numbers of people would be unable to obtain the food which actually exists. This food would then be called a "glut" and a "burdensome surplus," and the efforts of statesmen would be directed towards its "elimination."

Whether the peoples of the civilized world would stand this again, as they did in 1931, is to be doubted: if they revolted we might be involved in a situation as bad as war; I cannot imagine anything worse. In my view Sound Finance is rushing us full steam ahead to disaster; and I would remind anyone who says "Come, come, its not so bad as that" of the nigger who fell off a sky-scraper, and was heard to remark as he hurtled past the twelfth story, "I'm all right so far."—I am, etc.,

Norwich, June 6. FREWEN MOOR.

"What is Osteopathy?"

SIR,—May I be allowed to answer the letters of Sir Morton Smart and Sir Ernest Graham-Little in your issue of May 29, first in a personal capacity, and, secondly, in my capacity of president of the British Osteopathic Association?

I, personally, readily admit that Sir Morton Smart and I do not agree as to the interpretation of osteopathic findings; I did not, and do not, mean to convey any other impression. The quotation from his book was taken to substantiate my argument with Sir Walter Langdon-Brown that fundamentalism and modernism are not incompatible, noting that the book in question was published in 1933. But the physiological circulatory conditions prevailing around a joint and the pathological findings supervening in joint injury are facts which are not altered by what interpretation he (Sir Morton Smart) puts on them or by what I read into them. As president of the British Osteopathic Association I wish to emphasize that there is no evidence whatsoever that the promoters of the Regulation and Registration of Osteopaths Bill accepted the British School of Osteopathy as satisfactory. Osteopathy in America is not, as Sir Ernest Graham-Little states, a declining cult. Figures are available to all. It is true that there are twice as many chiropractors as osteopaths in America. That is due to the fact that the osteopathic course is four years and the chiropractic course is two years. It is unmanly of Sir Ernest to taunt the osteopaths with this invidious comparison, which is brought about by the adoption of the course which he recommends—namely, the conforming to "something very nearly approaching the normal [medical] curriculum in this country."

Why does not Sir Ernest Graham-Little visit the American Osteopathic Colleges as he is so very interested in the subject? He might come back with views similar to those of Sir Robert Stanton Woods, who in his presidential address to the Physical Medicine Section of the Royal Society of Medicine said:

"Underlying the principles of osteopathy, at any rate as the subject is authoritatively taught, there is much that is fundamental in medicine. Of the remainder there is undoubtedly matter which is new to us or at any rate to me, but which we are not in a position to reject with reasoned argument. Some of the teaching we cannot accept, and part at least of this is already being modified. But that much of osteopathic technique will be, and indeed is being, adopted by our profession is undoubted; while some of the principles which I have, in very inadequate fashion, attempted to outline, cannot be rejected without a more reasoned consideration and further clinical and experimental investigation than they have hitherto been accorded."

Sir Ernest Graham-Little asks for certain information regarding the educational aspects of osteopathy in this country. These details will be made available to the public in due course, when the time is ripe.—I am, etc.,

Edinburgh, June 9. W. KELMAN MACDONALD.

The Age Incidence and Sex Incidence of Milk-borne Typhoid

SIR,—The late Dr. Vernon Shaw's report (1937) on the Bournemouth epidemic contains some useful data in relation to the age and sex distribution of typhoid conveyed by milk which have not received notice in the reviews I have seen. A high incidence among women and children has come to be accepted as a feature of milk-borne typhoid. In a brief reference to the matter, and on rather slender evidence, I ventured the view last year that, while there was some ground for this belief, the case was not very convincing. Almost at the same time Hill and Mitra (1936) made an exhaustive comparison of outbreaks caused by infected water with others due to milk, and concluded that *on the average* women were more heavily affected, and there was a slightly higher proportion of children (especially males), in milk epidemics; but that in any particular instance the age and sex distribution would be very far from convincing evidence of the medium of infection. Godfrey, in the State of New York, had come to somewhat similar conclusions.

The Bournemouth epidemic was relatively large, and the figures are, therefore, by themselves of some value. The age and sex distribution of 284 cases in Bournemouth, 205 in Poole, and 26 in Christchurch (a total of 515) are given in Appendix 3 of Dr. Shaw's report. From charts in the body of the report it is evident that all these cases (with the possible exception of one in Christchurch) were primary house infections and therefore presumably due to milk. This freedom from secondary cases is astonishing, but there is nothing in another recent account by Dr. H. Gordon Smith, medical officer of health for Bournemouth, to cast any doubt upon it. From Shaw's figures the following table has been put together:

Typhoid in Bournemouth, Poole, and Christchurch

Age	Males	Per cent.	Females	Per cent.	Persons	Per cent.
—5	36	17.65	33	10.61	69	13.40
—10	42	20.59	46	14.79	88	17.09
—15	36	17.65	41	13.18	77	14.95
—20	23	11.27	43	13.83	66	12.81
—30	34	16.67	51	16.40	85	16.50
—40	13	6.37	38	12.22	51	9.90
40+	20	9.80	59	18.97	79	15.34
Total	204		311		515	

The numbers of males and females under 15 were nearly equal, but the male children formed 56 per cent. of all male cases, while female children were only 39 per cent. of female cases. The percentage of 45 for children of both sexes is not very different from that recorded in some water-borne epidemics. Over the age of 15 there were 191 female cases as against ninety males, a ratio of 212 to 100. The sex ratio over the age of 20 was even higher, being 221 to 100. At first sight these are striking facts. Unfortunately they cannot be placed against a population at risk in ages and sexes. They may, however, be compared with the age distribution of Bournemouth's population in 1931. The ratio of females to males over 20 years old in the population was 163 to 100. If the consumers of the affected milk in Bournemouth, Poole, and Christchurch

were in anything like this sex proportion the selective incidence on adult females, while remaining substantial, was much less impressive than would at first appear. Since a somewhat similar distribution may occur in *some* water-borne outbreaks (although it appears to be a much less constant feature)—and we know little about the age and sex incidence of case-to-case infections—it still seems evident that this method of differentiating the cause of epidemics is in practice unreliable and should be given less prominence than is customary in disquisitions on the subject.

About a year ago the late Dr. Shaw kindly supplied me with similar data concerning the Epping outbreak of milk-borne paratyphoid in 1931. His report has never been published and I am therefore now giving the figures, which may be useful to those interested in the subject.

Paratyphoid B in Epping and Neighbourhood

Age	Males	Females	Persons
—5	25	29	54
—10	31	24	55
—15	18	14	32
—20	15	19	34
20+	27	58	85
Total	116	144	260

Here, too, it is apparent that women over 20 were twice as heavily involved as men, and 64 per cent. of the male cases were under 15 years of age. These ratios, again, may not be peculiar to paratyphoid conveyed by milk, although the material for comparison is very scanty.—I am, etc.,

Cardiff, June 10. RALPH M. F. PICKEN.

Medical Aid in Southern Spain

SIR,—The Southern Spanish Relief Fund, whose hospitals in Almeria suffered severely in the recent bombardment, appealed through your columns for the voluntary assistance of doctors. Five applications in all were accepted after irreproachable references from colleagues had been received and after two of the applicants had been interviewed by a leading London doctor. Four of these five had successively to be repatriated in their own and our interest, leaving us with liabilities of over £200.

I honour the kindly reluctance of reference writers to give information that will prevent acceptance of a colleague's application, but I hope that your readers may feel the same kindly reluctance to let a compatriot suffer serious loss thereby. For I feel it impossible to charge expenses of the character incurred to a fund raised for the Spanish wounded, women, and children. Failing help they will have to be met from a private purse already depleted with running and raising money for these hospitals.

Any subscriptions for the relief of this personal liability should be marked "Medical" and addressed to E. T. Mardling, F.C.I.S., hon. treasurer, Southern Spanish Relief, 10, Old Jewry, E.C.2. Should they exceed the total liability subscribers will be consulted as to the refund or redisposition of the balance.—I am, etc.,

GEORGE YOUNG,
June 14. Director of British Hospitals in Almeria and Murcia.

Bicentenary of Bristol Royal Infirmary

SIR,—Sunday next, June 20, marks the completion of 200 years' work at the Bristol Royal Infirmary, for on this day in 1737 the out-patient department was opened for the reception of patients, though the formal opening did not take place until December of that year. We feel that the bicentenary of the oldest provincial teaching hospital in the kingdom is a matter of more than local interest and importance. To mark the occasion a carnival is being held at the Clifton Zoo on July 7, 8, 9, and 10. The formal celebrations will take place later in the year, probably early in October, when it is hoped that former students and others associated with the Infirmary will make a special effort to be present.—I am, etc.,

E. WATSON-WILLIAMS, Ch.M.,
Bristol, June 14. Honorary Secretary, Bicentenary Celebrations Committee.

Obituary

F. W. COLLINSON, M.D., F.R.C.S.Ed.

Consulting Medical Officer, Royal Infirmary, Preston

We have to announce with much regret the death of Dr. F. W. Collinson, a greatly respected member of the medical profession in Lancashire, who had been associated with the Preston Royal Infirmary for fifty years. He was president of the Lancashire and Cheshire Branch of the British Medical Association in 1929 and chairman of the Preston Division in 1922.

Frederick William Collinson was born in 1853 at Alnwick, one of three sons of the head master of the Duke of Northumberland School in that town. After leaving school he was apprenticed to a chemist and druggist at Alnwick and became a member of the Pharmaceutical Society. At the age of 27, however, he made up his mind to become a doctor, and entered as a medical student at the University of Edinburgh, graduating M.B. and C.M. with honours in 1885 and obtaining the M.R.C.S.Eng. in the same year. He proceeded to the M.D. degree and became M.R.C.P.Lond. in 1900, and took the F.R.C.S.Ed. two years later.

His first resident posts were those of house-physician at the Edinburgh Royal Infirmary and resident medical officer at the Cowgate Dispensary. In 1887 he went to Preston as senior resident house-surgeon at the Royal Infirmary. After two years in that appointment he set up in private practice, but continued his connexion with the hospital as a member of the honorary medical staff. He brought with him from Edinburgh the Listerian outlook and technique, and little by little the surgical practice of the hospital, then in a very backward state, was brought into line with the new doctrines. When towards the end of the century the late Sir Charles Brown decided to give an operating theatre to the Royal Infirmary he and Dr. Collinson visited many centres in order to be able to incorporate in it the latest principles of construction and equipment. Dr. Collinson's skill in surgery became known far beyond Preston, and he contributed a number of papers on operative procedures to the *Lancet* and the *British Medical Journal*. Besides his work at the Preston Royal Infirmary he was consulting surgeon to the Lytham Cottage Hospital and visiting medical officer to Goosnargh Hospital. During the war he did fine work for wounded soldiers at the Moor Park Hospital. In his later years he took a prominent part in the administration of the town, and after service on the Town Council was made

an alderman, retiring from public life two years ago at the age of 82.

Dr. Collinson was held in the highest esteem by the medical profession of Preston and the surrounding country; his kindly wisdom endeared him to all his colleagues. The interment at Broughton, preceded by a service at Preston Parish Church, was attended by many representatives of medicine and of the varied public interests which he had served so faithfully.

ARTHUR DOUGLAS HEATH, M.D., F.R.C.P.

Consulting Physician, General Hospital, Birmingham

We much regret to record the death of Dr. Douglas Heath, the well-known Birmingham dermatologist. Born at Exeter sixty-six years ago and educated at the Grammar School there, Heath received his medical training in London at University College Hospital. He obtained the M.B.Lond. with honours in 1894, the M.D. a year later, and the M.R.C.P. in 1901. He was elected to the Fellowship of the Royal College of Physicians a few years ago. After a full series of resident hospital posts he came to Birmingham, where for a few years he was in general practice and held the posts of surgical casualty officer and later casualty assistant physician at the General Hospital. He developed a special interest in dermatology, and in 1906 took charge of the newly created department of skin diseases. For thirty years, both in hospital and in consulting practice, he was regarded as the foremost dermatologist in Birmingham.

Heath, although of a somewhat retiring disposition, had a strong sense of duty, and he took a full share in the developments and work of his department of medicine. He was honorary secretary and later vice-president of the Dermatological Section at Annual Meetings of the British Medical Association, in 1926 he became president of the British Association of Dermatologists, and in 1931 was president of the Midland Medical Society. In the latter office his wide knowledge and his enthusiasm were much appreciated.

A kind and sensitive man, Heath's rather didactic utterances and his swiftly formed opinions might have belied his true character; but, curiously enough, people even on meeting him for the first time were rarely deceived. He was an uncompromising Conservative, and his attachment to the established order of things was often evident. Until shortly before his retirement Heath travelled between his consulting-rooms and the hospital on a push bicycle—which was neither washed nor oiled from the time he bought it until he exchanged it for a new one. He often pointed out that this was the most care-free of all means of transit!

Heath was a man of many interests. His collections of antique furniture, of clocks, and of watches were some of the most valuable in the country, and as a judge of these things he was regarded as pre-eminent. Here, as in his work, his careful scrutiny, his sound judgement, and his frank and clear expression of opinion were characteristic. His association with his native county was preserved by membership of the Devon Society, of which he became president. Fishing and bridge claimed much of his attention; in each he had a way of his own. In committee he was outspoken, but no one was ever hurt or offended.

A wide circle of students, patients, and friends feel that that a Birmingham institution has gone; a man who was an encyclopaedic teacher, a considerate doctor, and a warm-hearted friend.

H. W. F.

C. H. SHORNEY WEBB, F.R.C.S.

Mr. Rufus C. Thomas writes: The news of the death of Charles Shorney Webb, occurring as it did just two years after his appointment as consulting surgeon to the West Middlesex Hospital, must have come as a shock to all who knew him or his work. Brief though his period in West Middlesex had been, he had left his mark written indelibly on the surgical side of the hospital, the rapid development of which is known and appreciated throughout the very wide area from which its patients are drawn. To Webb's keen interest and sound surgical judgement this development is very largely due. He gave freely and of his best to the department of which his was the guiding hand and whose interests he had so closely at heart. To those of us who, like myself, had the privilege of knowing and working with him during this time his passing leaves a sense of loss which is difficult to express. His highly sensitive character was a happy blend of simplicity and deep understanding. His gentle sympathy and never-failing courtesy earned for him a very deep affection, shared alike by us who worked with him and by those who, in their hour of need, came under his care. His time was short. His memory will remain, our thoughts of him filled with that feeling of kindliness and friendship which, to those who knew him well, was the very essence of his nature.

"E. T. C. M." writes: The obituary notice of Charles H. Shorney Webb in your issue of June 12 is surpassingly beautiful and has permanent value. "No man liveth to himself" is indeed true of Webb. We saw his body quickly reduced to ash by the flame, but his influence in our surgery, in our art, in our grip of unseen things, will be handed on through us to the next generation and will never die. We, his friends, who are still in "the front line of battle" are compelled to pay a tribute of thanks to the outstanding contribution he made to our morale in this fight. Against what appeared to us insuperable odds he rose victoriously from defeat and despair. To those who saw this "rebirth" there can never again be a hopeless case. Moral and spiritual war wounds in a world imprisoned in material things are either not recognized or not estimated in the cost of war. Many of us have known in ourselves and have seen in others their pain and disabilities. In these peaceful years some have, like Webb, found recovery. It is an inspiration of hope to those with scars still unhealed, with mental and spiritual faculties still distorted, to know of one who came back from "death" to "life."

Dr. W. Guyon Richards writes: May I pay a tribute to the memory of Dr. JOHN ROUND, whose death was recorded in the *Journal* of June 12. For a number of years Round spent time, energy, and money on research in regard to the early diagnosis of cancer, and in conjunction with Mr. D. A. Ruddle worked out a test from urine on Bendien's lines. He also suggested that zinc played an important part in cancer, and they found zinc was increased in the growth and diminished in the faeces. I shall always remember Round's zeal, kindliness, and modesty. I feel it was an honour to have worked with him and assisted his work in a small way. He had the most comforting steadiness of character and bearing, and was free from all self-seeking.

J. G. McN. writes: I have just seen with great regret the notice of the death of Dr. JOHN LUKE JACKSON in the *Journal* of May 1, and should like to pay tribute to his memory. He served with me for a short time in No. 4 Clearing Hospital during the Battle of the Aisne in September, 1914. The hospital was short-handed and overwhelmed with work, and Dr. Jackson was one of several medical officers sent to it for temporary duty. He showed

himself to be a very good surgeon, an excellent administrator, and a pleasant, cheerful comrade. I should have liked to retain his services, but when I was asked to find medical officers to replace casualties among regimental medical officers Dr. Jackson was the first to volunteer. Soon afterwards he was taken prisoner, and I did not meet him again till after the war. Attending a meeting of a medical society at Knowle Mental Hospital I was delighted to find that Dr. Jackson was the superintendent. Though my acquaintance with him was of short standing, I had been greatly impressed by his personality, and am exceedingly sorry to hear of his too early death.

A veteran member of the British Medical Association, Dr. LEE FYSON COGAN, J.P., died at his home in Sheep Street, Northampton, on June 9, in his eighty-ninth year. His father was the Rev. Lewis Rew Cogan, vicar of Winsley with Limpley Stoke, near Bath. He studied medicine at Bristol and at Guy's Hospital, and obtained the diplomas of L.R.C.P.Ed. and M.R.C.S.Eng. in 1870. After serving as assistant resident medical officer at the Northampton General Infirmary Dr. Cogan was appointed medical officer of health for the county borough of Northampton, a post which he held for twenty-six years; he was also medical superintendent of the Northampton Borough Hospital. He joined the British Medical Association in 1872, and continued his membership without a break for sixty-five years.

Dr. HERBERT CHARLES HORACE BRACEY, son of the late Dr. Herbert Bracey of Bristol Road, Birmingham, has died at the age of 55 in Dudley Road Hospital, Birmingham, after a serious operation. He had been on the staff of the Warwickshire County Council since 1912, and at the time of his death was senior assistant county medical officer of health. Before his service in Warwickshire he was on the staff of the Birmingham Education Department as assistant school medical officer, and shortly after qualifying he held the posts of house-physician and house-surgeon at the Queen's Hospital, Birmingham. He was a Fellow of the Society of Medical Officers of Health, took an active interest in the Royal Medico-Psychological Society, was closely associated with Floodgate Street Medical Mission, and was president of the League of Nations Union for the Acocks Green district of Birmingham. Dr. Bracey was a very able clinician and a keen student of psychology, rendering him well equipped for dealing with the physical and mental health of the school child, one of his principal activities. His association with the Dudley Road Hospital in the great war drew him again to that hospital during his last illness, and his untimely death will be deeply felt by a wide circle of friends, personal and professional, who found him always kind and sympathetic and ready to give of his best to his fellow men. His loss is particularly felt by the staff at Warwick, where he was held in the highest esteem.

Medical Notes in Parliament

In the House of Lords on June 14 the Physical Training and Recreation Bill, which has passed the Commons, was read a first time.

The House of Commons this week considered the Education Estimates and resumed discussion of the Estimates for the Ministry of Health. The vote for the Board of Control was also put down for discussion. In committee on the Finance Bill on June 9 the House approved the clause increasing the Income Tax for 1937–8 to 5s. in the £1. The clause proposing a "National Defence Contribution" was dropped on June 10. The Royal Assent was given on June 10 to the Civil List Act, the Diseases of Fish Act, and to other Acts.

The Parliamentary Medical Committee met at the House of Commons on June 10 and decided to ask Sir Kingsley Wood to receive a deputation on an early day about the decision in the Additional Benefits Amendment Regulations to permit, under the National Health Insurance Act, sight tests by recognized opticians. The Minister has agreed to receive the deputation on June 17.

The second reading of the Children's and Young Persons (Scotland) Bill was moved in the House of Commons on June 10. This Bill had already passed the House of Lords. Mr. T. M. COOPER, the Lord Advocate, said this was a consolidation Bill incorporating the relevant provisions relating to persons under 18 years contained in four statutes, one in 1910, one in 1928, one in 1932, and certain provisions of the Education (Scotland) Enactment Act, 1936. The measure put the law into a convenient form without introducing any change. The Bill was read a second time and sent to a committee of the whole House.

The report stage of the Factories Bill was taken in the Commons on June 15 and the following days. Sir Samuel Hoare withdrew a new clause dealing with washing facilities, and a new clause proposed by Mr. Banfield for the prohibition of night baking was defeated. New clauses were added to the Bill which dealt with protection of the eyes in certain processes and with accommodation for clothing.

The Trade Marks (Amendment) Bill passed through a standing committee of the House of Commons on June 15.

Ministry of Health Estimates

The House of Commons in Committee of Supply last week considered the vote for the Ministry of Health. Sir KINGSLEY WOOD said that the net total estimate for 1937 had reached over £22,000,000, while the estimates for all services administered by the Department involved an expenditure of some £166,000,000. The Ministry of Health estimates this year showed a net increase of nearly £500,000 over those of last year. Progress under the slum clearance campaign was reflected in the provision of an additional £500,000 in respect of new houses, and for the first time there was £207,000 for grants under the new Midwives Act. There had been an increase of £7,000,000 in the total of loans sanctioned to local authorities, which amounted to more than £42,000,000. Considerable activity had been displayed in the provision and extension of sewers and sewage disposal, and there had been increased provision for public recreation. In 1926 the total loans for public recreation amounted to £1,260,000; last year it was approximately £3,200,000. On the credit side of the health balance sheet he could say that motherhood was safer than for sixteen years, inasmuch as the maternal mortality rate per 1,000 live births was the lowest on record since 1922. Infant mortality was low. The tuberculosis crude death rate continued to decline, having fallen from 718 per 1,000,000 persons in 1935 to 693 in 1936, the lowest rate hitherto recorded. There had been a steady decline in the mortality from infectious diseases. There had also been a substantial decrease in the prevalence of diphtheria.

But there was another side to the health balance sheet. Cancer, though many more lives were saved to-day by early diagnosis, still remained one of the most deadly enemies of mankind, and the heaviest single item on the debit side of the balance sheet. It was true that diseases of the heart and circulatory system headed the list, but they, of course, might result from a number of various diseases. Colds and influenza still accounted for nearly a quarter of the absences from work, and while it was true that the influenza epidemic last year was what was called clinically mild, he could assure the committee on the best authority that there was not likely to be a further visitation on the same scale for two years.

POPULATION PROBLEMS

The estimated mid-year population of England and Wales in 1936 was 40,839,000, and this figure showed an increase of 194,000 over the estimated mid-year population figure in 1935. The total number of births was 605,292, the birth rate per 1,000 living being 14.8, which was 0.1 per 1,000 higher than the birth rate for 1935 and 0.4 above that of 1933, which was the lowest on record in this country. The total number of deaths was 495,764, and the crude death rate per 1,000 of the population was 12.1, which was 0.4 per 1,000 higher than for 1935, and 0.7 above that of 1930, which was the lowest on record. Certain facts concerning population were already known, but before they could properly consider the problem they would need to know many more. The birth rate, which stood in 1875 at 35.4 per 1,000 living, had fallen to 14.8. He was told that mothers of to-day had about half the children that their grandmothers had, and they knew that in the next fifteen years the total number of children aged 5 and over in public elementary schools might fall by as much as 1,000,000. Our population in the immediate future would contain a much larger proportion of older people. They could not, of course, say whether these conditions would all continue. It was not necessary to be pessimistic about the matter, for instance, as to whether they would have to take into account a stationary or a declining population.

At present there were two inquiries in progress, one by the Registrar-General and the other by the Population Investigation Committee, a voluntary body under the chairmanship of Professor Carr Saunders. There was already close co-operation between the two inquiries. It was already apparent, in the opinion of all these investigators and of many other authorities, that before this matter could be adequately dealt with, either by them or, as had been suggested, by a Royal Commission, further steps would have to be taken to make available certain new facts and statistics. Present methods of obtaining and keeping important vital statistics were unsatisfactory and incomplete. Further information was undoubtedly necessary in connexion with fertility. The existing birth rate figures showed the children born of the population as a whole, but fertility statistics must relate to the births of particular parents, and show what kind of parents, and under what conditions, they produced many or few children. Other particulars wanted were the ages of the parents, the date or duration of the marriage, the orders of births, and matters of that kind. If these facts were available it would be possible to investigate much more adequately the conditions and circumstances which appeared to encourage or discourage the production of children. He was considering the best steps that could be taken so that these particulars could be obtained, with due regard to their confidential and personal nature.

HOUSING

Turning to housing, Sir Kingsley Wood said we had had another successful house-building year. The provision of decent and better houses had been the greatest contribution which this generation had made to better health and living conditions. The 3,000,000 mark of new houses built since the war had long been passed. Since that time some 12,000,000 persons, equal to 30 per cent. of the population, had moved to new homes. So far as housing last year was concerned there was a record total with the erection of 346,000 houses, compared with 325,000 the previous year, and 329,000 in 1934–5. The loans sanctioned for housing purposes in 1936–7 were over £33,000,000, compared with £25,000,000 in the year before. Demolition was proceeding on parallel lines, and proposals for clearance and the building of new houses were being prepared at a rate which should ensure the maintenance of the building programme at the same level during the coming year.

Rural district councils were at present concentrating on slum clearance, and increased attention was being paid to it. It had resulted in the original slum clearance programme for rural district councils being increased by approximately two-thirds. There was almost as big a slum problem in the rural areas as sometimes there was in the towns. The present programme covered some 55,000 houses, of which nearly 23,000 were to be dealt with in clearance areas. Some 17,000 houses were already in areas which had been declared, over 15,000 were covered by orders submitted to him, and nearly 12,000 were in orders which had been confirmed. A total of 28,000 new houses had been built or were under construction to replace unfit houses. In many areas schemes for abating overcrowding were proceeding concurrently with the erection of houses for slum clearance. The renovation and bringing up to date of existing country cottages under the Housing (Rural Workers) Act was important. While the measures in hand for improving rural housing conditions were as much as could be carried out at the moment within the limits of the building industry, the Minister had asked his Central Housing Advisory Committee to consider further steps in rural housing. He hoped soon to receive their report, and then to consider what further action might be necessary in the light of that report.

RESULTS OF THE OVERCROWDING ORDER

The fixing of the "appointed days," the date from which the new overcrowding provisions were to operate in particular areas, was proceeding steadily. Up to the end of March orders had been issued for fixing the appointed day for 1,484 local authorities out of a total of 1,536. The appointed day would be fixed for practically every one of the remaining fifty-two authorities before the end of the year. The abatement of overcrowding did not await the fixing of the appointed day. The amount of overcrowding had been substantially reduced in many parts of the country since the time of the overcrowding survey.

March 31 of this year marked the end of the fourth year of the five-year programme of slum clearance. It had more than kept its promise. Four-fifths was represented by 166,000 houses, and already the houses in submitted orders and purchase agreements exceeded that number. Progress was, in fact, better than the figures indicated. The original programme had been constantly extended in many areas, and at the end of March the revised slum clearance area programme in this country stood at 265,000 houses, compared with 207,000 houses, an increase of 28 per cent., while the number of houses to be dealt with under individual demolition orders had grown from 72,500 to 110,500. The total revised programme was now 375,000, or an increase of 34 per cent.

The Minister was considering again, in conjunction with his Town Planning Advisory Committee, the adequacy of present powers, and whether anything further could be done in that connexion. With regard to town planning in London, the local authorities concerned had been invited to co-operate in the establishment of a new joint standing committee, which he hoped would be set up in the very new future. He would be asking the House at a later date to approve the extension of the present rates of subsidy both for slum clearance and the abatement of overcrowding so as to apply it to houses completed by December 31, 1938. This would extend the operation of the present rates, which were fixed by statute, for houses completed up to March 31, 1938, for a further nine months. When he came to review the position he would approach the matter with the view that the completion of slum clearance and the abatement of overcrowding were vital elements in the health services of this country, and that the new houses provided for this purpose must be let at rents within the means of those who occupied them.

GENERAL NUTRITION

Nutrition was playing and must play an increasingly important part in health provisions and plans, but while food was important and vital, good nutrition was also a matter of good housing, open spaces, good sleep and rest, and proper exercise. Following the report of the Nutrition Committee last April the Minister asked the maternity and child welfare authorities to review their arrangements for the supply of milk and meals to nursing and expectant mothers and young children. Already one-fifth of the authorities had replied, and many were now taking steps, particularly in cases where the supply of milk had been restricted to expectant mothers in the last two or three months of pregnancy, and in the case of children, where it had been restricted to those of very

young age. A number were extending the service to cover the whole or the larger period of pregnancy, and to include more children under 5 years of age. In addition, the quantities of milk supplied were to be increased, and the payment required from those recipients of milk who could afford to make some payment were in a number of areas to be fixed in the future on a more favourable scale, to ensure that all mothers who could not afford to pay for full supplies of milk should be able to take advantage of this arrangement.

DECREASE IN MATERNAL MORTALITY

The fight to reduce maternal mortality was a particularly stern and difficult one. In comparison with other countries our rate was not a specially high one, but for a long period it had not substantially varied. After reading the report of the Department's investigators he had come to the conclusion that a proportion of the deaths that take place in this country were preventable. The rate fell in 1936 to 3.81 per 1,000 live births, which was the lowest figure since 1922, and this was the first year since 1924 that the figure had been under 4 per 1,000. The recent report showed that the main line of attack on maternal mortality must be the continuous improvement of the local maternity services, the keynote of which was the necessity for team work. From the proposals which had been submitted by the local authorities it could be said that satisfactory arrangements were being made under the Midwives Act in the greater part of the country. Important steps were being taken in the training of midwives, and the number of ante-natal clinics had increased by seventy-six during the past year. There had also been an increasing number of mothers attending these clinics.

Infantile mortality in England and Wales had fallen to 59 per 1,000 births, which was only slightly above the low record rate of 57 in 1935. There was a steady increase in the number of children under 1 year brought to the infant welfare centres. The importance of the fullest supervision over the health of children between 18 months and 5 years had been emphasized to local authorities, and there had been a substantial increase in the number of visits paid by health visitors to such children. As a result of this representation at least forty-seven authorities had established special clinics for toddlers, and fifty-three had arranged for the school medical services to be available for the younger children, while sixty-four had appointed additional health visitors. Although we had perhaps the finest social services in the world they were by no means fully utilized. It was regrettably a fact that nearly one-half of the expectant mothers had not been brought within the scope of the ante-natal services. It was also regrettable that there were still areas where the majority of parents had not taken full advantage of the services provided under the maternity and child welfare schemes for the benefit of their children. With regard to tuberculosis, local authorities were steadily improving the provision for diagnosis and treatment, but a large number of patients only came under the purview of the service when the disease was too advanced to make recovery probable. The Minister hoped in the autumn of this year, in association with the Board of Education and the Central Council for Health Education, to organize a national campaign to bring these health services more to the notice of the people. The keynote of the campaign would be: "Use your Health Services."

The aim of the Ministry must be to make good health the birthright of every citizen. The fight for good health could not be successfully conducted with a limited choice of weapons or on a narrow front. They must more than ever use the whole armoury which modern knowledge and medical science had given, and, if possible, broaden their front and deal not only with the specific diseases of the individual, but more and more with the wider conditions of the environment and occupations of the people. Although there was much to accomplish, it could be claimed that their efforts to build up a healthy nation had not been in vain.

REDUCTION OF THE VOTE MOVED

Mr. AMMON moved to reduce the Vote by £100. He said that the block grant system limited the full play of the services which Sir Kingsley Wood had mentioned. He hoped that before it was too late the Minister would turn his mind to the planning of satellite towns and the location of industry. Something should be done also to provide facilities for recreation and breathing spaces within London and other large towns. Whenever there was a clearance and rebuilding scheme some part of the ground ought to be scheduled as a public open space. Referring to the question of public abattoirs he said that there were 15,000 private slaughter-houses, and 120 public slaughterhouses were provided by local authorities. In London there was only one public abattoir, in the Caledonian Road, but there were a number of small ones. Slaughtering on a large scale should only take place in the slaughterhouses provided by public authorities or institutions like the co-operative societies. The others were of such a character as to make it very doubtful whether the ordinary rules regarding cleanliness and so forth could be observed. He hoped the Minister would consider at some time bringing forward proposals to deal with this matter.

Mr. HAMILTON KERR said that there was still very little supervision of the child between the ages of 2 and 5 years in this country. That was the chief gap which existed in our health services. Either in a local centre or in the head-quarters of a town a properly organized file of the entire health history of each boy and girl should be readily available. Only by being aware of the total medical history from the age of 1 to 16 could a doctor hope to deal efficiently with a case before him. Mr. LANSBURY contended that the necessity for the services controlled by the Ministry of Health arose very largely because of poverty, and until poverty was dealt with we should not make true progress. Until children could get within their homes all the food necessary for them we should not obtain that healthy, virile youth population that we all wanted to see.

Mrs. TATE hoped the Minister would set up a committee to inquire into the desirability of voluntary or compulsory notification of venereal disease. She asked the Minister last year if there might be a more careful inspection of nursing homes. She pointed out that in many nursing homes there were still draperies and hangings which spread disease. Careful inquiries might be made into conditions ruling at some nursing homes to see whether they did in actual fact receive what might be called normal illnesses, and whether there was not great ground for believing that curious and very undesirable practices were going on in places which were called nursing homes.

NON-TUBERCULOUS WORKERS AT SANATORIA

Mr. ROWSON said that in his constituency there was considerable complaint about the way in which posts under the Midwives Act were being advertised. The secretary of the local midwives association had sent him twelve newspaper cuttings of advertisements for persons to fill the new positions, and in every case there was emphasis on the applicant being a State-registered nurse in addition to being a midwife. The Minister would do well to call the attention of local authorities to the point that these advertisements were misleading, and that all due consideration should be given to the woman who had the single qualification.

He accepted the statement of the Minister in regard to tuberculosis, and agreed with what he said about there being a considerable fall in the number of cases, but he wanted to raise again a matter in connexion with village settlements. He referred particularly to the Papworth village settlement. The report stated that it was understood that the provision of a home for the benefit and prolonged after-care of nurses who had contracted tuberculosis in the course of their duties was projected at Papworth Village Settlement. His point was that certain trainees and non-tuberculous persons were being sent to Papworth to work side by side with persons suffering from that disease. If there was any purpose at all in building these sanatoria or hospitals it should be that of preventing contagion and infection, and we ought forthwith to prevent persons, except those whose services were absolutely necessary in connexion with the staffing arrangements, from going to these settlements.

He agreed that the numbers suffering from tuberculosis were falling considerably, but in England, Wales, and Scotland from 1926 to 1935 inclusive 390,516 people died from tuberculosis. In England and Wales alone, according to last year's records, there was a total of 29,201 deaths from pulmonary tuberculosis and non-pulmonary tuberculosis. This meant that in England and Wales alone 562 people a week, or eighty people a day, died from tuberculosis. There was reason for the most serious consideration of this matter, and for the finest research we could employ to try to cut down this terrible scourge. One of the means by which we should be able to combat this disease was by the better housing and feeding of the people.

THE NEW OPHTHALMIC BENEFIT REGULATIONS

Sir FRANCIS FREMANTLE drew attention to the proposed additional ophthalmic benefits, a subject on which he had received a number of telegrams during the debate. It was a most important subject, and he was not going to take sides one way or the other. He was bound to tell the House, however, of the feeling of those most qualified obviously to know the danger that existed in the examination of eyes for spectacles by opticians who, however eminent, had not the qualifications to detect serious illness at the back of the eye. There was a doubt in people's minds whether it was right that additional benefit should be allowed from the National Insurance Fund for opticians to prescribe spectacles. Obviously it was the most convenient thing to be done from the point of view of the superficial provision of spectacles.

The Departmental Committee on the Causes and Prevention of Blindness in 1922 stated quite definitely that ". . . an official Register of Opticians would tend to mislead the public into thinking that registered opticians were competent to discharge functions which belong only to those who have had a medical training." Again, a Departmental Committee in 1927 said: "We are not satisfied that even those opticians who are most highly qualified in all other respects are sufficiently trained in this respect." These two bodies, therefore, had taken the view that it was dangerous to allow this additional benefit to be given to a register of opticians, but apparently the Minister of Health was about to make a new departure and to allow a register of these opticians to be made out. This would certainly have the effect that people going to members of the register would think that they were going to persons who were competent to prescribe as regards the trouble to their eyesight. There was this to be said in 1927. The ordinary medical practitioner had not then any real provision to be able to deal with this question, but panel practitioners had taken the matter in hand, recognizing the difficulty of meeting the need of the insurance beneficiaries. There was the Association of Dispensing Opticians, and the National Ophthalmic Treatment Board had been set up, with inclusive charges well within the means of those whose family income did not exceed £250 per annum. If that was so, and if that was sufficiently widespread over the country, it was a dangerous thing to allow this additional benefit to be given merely for treatment by those who were not qualified to find out the trouble at the back of the eye, and it was another instance where the public might be put upon in some cases by those who were really not qualified to give advice.

The case for satellite cities in general was agreed, Sir Francis continued, but the real difficulty was to get them accepted and put into effect by local authorities. The London County Council said that although they had all the trouble involved in making a satellite city, it would only account for a very small number of the people with whom they have to deal; that London was migrating 100,000 persons every year into the surrounding country, and that if they were dealing with that number every year what was the good of little garden cities that would only deal with 50,000 or 100,000 altogether and take years to establish? That viewpoint mistook the real intention of the whole garden city campaign. It was not simply in the establishment of a garden city here or there, although that would be the ideal, but it would be in the adaptation of the whole town-planning movement in that direction.

NOTIFICATION OF VENEREAL DISEASE

Sir Francis endorsed the plea made by Mrs. Tate as regards the Scandinavian experiment in the treatment of venereal disease. The position required to be argued, he said, because it was quite clear that that experiment had resulted in a position of almost complete immunity from syphilis and a very large reduction of venereal diseases generally, largely, it was claimed, by compulsory methods. Undoubtedly we had improved matters here with the inception of treatment centres, but the fact was that a large number of persons failed to use the treatment to the finish. Of nearly 50,000 persons who were discharged last year from the venereal disease clinics only 22,000 had the final tests, and nearly 20,000 ceased to attend before completion of treatment. What was the result? They went out to infect the community, and in many cases brought into the world infected children. There was not nearly enough education in this matter, and the Ministry of Health ought to exercise more pressure on the local authorities to keep up their quota of subscriptions to the Social Hygiene Council, that had been entrusted by the Government in successive years with this particular service. We should consider very seriously the question whether it was not necessary to introduce some kind of compulsion either as regards notification or as regards the completion of treatment—treatment to a finish. He did not believe the case was proved, as the American Commission's report would suggest, for the adoption of a compulsory system, but it was foolish to blind our eyes to the results that had been obtained in Scandinavia—results which apparently we could not equal in this country. A Commission of Inquiry should be set up; it would give valuable results.

A CAMPAIGN AGAINST RHEUMATISM URGED

Mr. J. HENDERSON said that several Continental countries had outdistanced this country in the treatment of rheumatism. He urged the Minister to organize, if possible, a national service of municipal clinics in conjunction with the local hospitals, where manipulative and other treatment could be given.

Mr. G. GRIFFITHS urged the Minister to deal with burning pit heaps in mining districts, the fumes of which caused ill-health. Last year he had asked a question about the wives and dependant children of State-insured persons being allowed insulin free of charge. If the wife of a State-insured person was a diabetic and was prescribed insulin, which cost anything from 10s. to 18s. a week, she could not, if her husband was working, no matter what his wages, get any money with which to purchase the insulin. Only ten days ago he visited in his own village a woman who had to spend 17s. 6d. a week on insulin, because, since her husband was earning £3 a week, she could not get any from the public assistance department.

Mr. GODFREY NICHOLSON said that it was felt by some that the Ministry was losing a sense of proportion with regard to maternal mortality. They felt that too much stress was being laid on ante-natal treatment and not enough on the importance of skilled attention at the actual time of birth. One eminent gynaecologist had written recently: "If the discussion, money, and thought which have been devoted to ante-natal care in its relation to mortality during the last few years had been expended upon intra-natal care we should be able now to claim that definite progress had been made. If this suggestion is correct the answer to the question, 'How can maternal mortality be reduced?' lies in improvement beyond all measure in the standard of treatment given to the woman in labour, not instead of but in addition to the efforts that have been made in the direction of ante-natal care. . . . It is the specialist who should be looking after the actual confinement and the practitioner doing the ante-natal care." Childbirth was "a major surgical procedure," and the Minister should bear that point of view in mind. The solution of the problems of maternal and infantile mortality lay in educating the lay population.

Miss WARD, referring to the proposed campaign of "Use your Health Services," asked if the Minister was absolutely satisfied that he had in his possession a detailed statement of the provision of health services as apportioned out by all the various local authorities? Before embarking upon a

campaign of "Use your Health Services" it was important to know whether there were adequate health services provided by every local authority, and also whether they had the necessary finances to enable them to take advantage of the powers conferred upon them.

GOVERNMENT REPLY

Mr. BERNAYS, replying to the debate, referred to the figures given in the latest annual report of the Chief Medical Officer of Health of the Board of Education. He said that they showed that out of 1,680,000 school children examined only 0.7 per cent. were suffering from definitely bad nutrition and only 10.6 per cent. from subnormal nutrition. There was also the encouraging fact which gave the lie to the assertion about the deterioration of our national physique, that the general death rate had fallen by one-third during the last twenty-five years, and that the death rate from tuberculosis in children under 1 year of age had been reduced by a half in the same period. Malnutrition was a problem, and the Government could legitimately claim that it had been tackled with energy and effect in the last few years. The question of satellite towns was dealt with by the Departmental Committee on Garden Cities and Satellite Towns appointed in 1924. The recommendations included the establishment of a National Planning Board. The main suggestion in regard to these satellite towns was that the larger local authorities at the appropriate stage should be encouraged, and, if necessary, compelled, to make further outward development in the form of planned units outside the town, separated by adequate areas of open land. What the Government had been asked to do to-night was to develop that system and to carry out those recommendations. The instances of Welwyn and Letchworth garden cities had been raised, and the Government had been asked why we cannot apply experiments of that kind. These garden cities were started by public utility companies, and the suggestion made was that these garden cities should be established by local authorities. That was quite a different thing. It would be quite contrary for London—to take an example—to establish an administrative council in Hertfordshire, which would in fact be an urban community surrounded by another administrative council. The operations which local authorities were carrying out were doing much to secure the objects which members had in mind.

Objection had been taken to the recognition of opticians as having power to prescribe for defective eyesight. While the Minister was satisfied that the ultimate ideal was that all persons should go to a medical eye specialist, he was satisfied that it would not be practical politics under present conditions to make this an invariable procedure in all cases. The reasons were that the supply of qualified medical men was not sufficient to meet the needs of the whole population, and that the people had not been educated up to recognizing the advisability of this course in what they regarded as ordinary straightforward cases of defective eyesight. The Regulations therefore provided for either of the alternative courses being followed. Every insured person was required to visit his own insurance doctor before his application for ophthalmic treatment was granted.

The amendment was negatived, and the debate on the Estimates for the Ministry of Health adjourned. Subsequently it was announced by Mr. Chamberlain that the debate on the Estimates of the Ministry of Health would be resumed on June 18.

Issue of Gas Masks to Civilians

Mr. GEOFFREY LLOYD, on June 3, said that detailed arrangements for the issue of gas masks to the public in the event of an emergency were not yet complete. The respirators would be stored in all towns or districts likely to be subjected to attack from the air, and would be distributed from the store to the individuals at their homes. Approximately 8,000,000 respirators were available, and would be issued by the Government free of charge in an emergency. In reply to Mr. Temple Morris on June 7 he said that the location of depots for the storage of civilian respirators in those parts of Wales and Monmouthshire which were considered to be in the danger zone had not been finally decided.

Prison Expenditure

The Estimate for salary and expenses for the Prison Commissioners and expenses of the prisons in England and Wales was brought up before the House of Commons in committee on June 4. Sir SAMUEL HOARE made a statement on Home Office policy in respect of prisons. The problem of to-day was the problem of the young prisoner and how to prevent him going back to prison. In practice it had proved better to give a man privileges when he entered prison and appeal to his fear of losing them rather than to start him with none in the hope of getting something better later if he behaved well. The more humane prison administration had become the lower had been the number of habitual criminals. For some time the Home Office had tried the experiment of appealing to the prisoner's better instincts and giving him an interest in the things which really mattered in the world. An experiment in prison administration was being made in Wakefield, where between 400 and 500 men were trained under conditions of greater freedom and responsibility. The Prison Commissioners had established a camp of wooden huts, where selected prisoners lived and worked on the reclamation of scrub and woodland. This hard and healthy existence better prepared them for life in the outside world than did life within the limits of a prison cell.

Sir Samuel said that in years to come the Home Office must carry further the classification of offenders. Under the 1933 Act a great deal was done for children and young persons. They would have to consolidate their efforts more than at present on the next class of offenders, the adolescents, and, last of all, the habitual criminals. He intended while at the Home Office to look into the question of further classification, and further legislation might be necessary. It was new interests that men and women prisoners chiefly wanted, to get their minds away from morbid contemplation of the past, and to get them interested in their work and in their physical health. The greatest prison reform was the reform that kept people out of prison. What chiefly mattered was the general raising of the standard of life—mental, physical, and moral—outside prison walls. The problem which the House was discussing was only one part of a field of social reform, which included housing conditions and the campaign for greater physical efficiency.

Mr. RHYS DAVIES moved a reduction of the vote. He said classification of prisoners according to their criminal record was not enough. There ought to be another classification according to mental and physical standards. In 1913 out of 100,000 of the population 555 were in prison. In 1930 there were 143, in 1935 the figure was 114, and in 1937 it might become less than 100. While there was a reduction in the adult prison population in relation to men and women only one-seventh of that population were females. There was also a reduction in the criminal statistics relating to boys and girls in Borstal institutions, but the decline in criminality among youngsters was not as steady as among adults. It would not be possible to do much more to help prisoners so long as the old prison buildings remained. When a man went to prison for ten or fifteen years the social insurance schemes were never available to him again. The House had not yet the report of the Prison Commissioners for 1936, and he could not understand why these reports were not available earlier. The previous report stated that four men and ten women were released on medical grounds. He would be happy to be assured that no babies were now born in prison.

MEDICAL EXAMINATION OF CRIMINAL LUNATICS

Mr. RITSON said many appeals had been made to have a medical examination of a man who had been thirty-five years in Broadmoor as a criminal lunatic. So far as Mr. Ritson knew no such appeal had ever been granted in this country, but the Home Office had now agreed that there ought to be facilities of that sort. When anyone had been locked up under conditions like these for such a term there ought to be an opportunity for examination. The nation was now

endeavouring to make mental institutions brighter, and this should be applied also to prisons.

Mr. GALLACHER said flogging was terrible, but was nothing to compare with the torture of the dark and silent cell. Some prisoners were nervous and irritable. If they made some retort to a warder they were reported and sent to the silent cell. Everything was taken out of the cell except the stool, and they had to sit on that stool or walk about all day and all night. He had seen prisoners come out with their heads trembling and without any control over themselves. The solitude and silence threatened a man with complete mental breakdown.

Mr. GEOFFREY LLOYD said the points made by Mr. Ritson and others in speeches would receive special attention. The decline in the prison population was satisfactory. Last year the average population in all establishments was about 10,000 and the present population was about the same. The numbers had decreased since 1932, and one reason was the Money Payments Act. The extended use of the system of probation also had an effect on the prison population. The decline in prison population was most marked among women. The daily average population of women prisoners in 1910–11 was 3,581, but on June 1, 1937, it was only 685. The figure for Borstal reached its peak in 1934 when there were over 2,000 inmates. From that the figure fell for a short time but was now steadily increasing, and was well over 1,800 because of the increase in the age group with which Borstal was concerned. The Institute of Industrial Psychology had assisted the work of the Borstal institutions and had worked out a system of examination of individuals to help in deciding for what work they were fitted. The Home Office made a practical test with regard to the work that the boys did, and was arranging to train house masters in carrying out these tests.

With regard to other classes of prisoners the condition that hard labour prisoners must spend fourteen days without a mattress did not apply now to those who were aged or medically unfit. This matter was governed by statute, and the Prison Commissioners were not free to make a change without the consent of Parliament, but the Home Secretary would consider it and other matters when the question of legislation arose. Mr. Rhys Davies had referred to the Belgian experiment with young prisoners. The Home Office, however, did a good deal in this matter. After being sentenced all Borstal boys were collected at Wormwood Scrubs and examined on their antecedents and mental and physical circumstances before deciding to which Borstal institution they should go. When the court asked for a special report or when the Governor asked for a special examination it was always carried out. Observation and examination were made the basis of treatment. The motion for a reduction of the Estimate was withdrawn.

APPROVED SCHOOLS

The vote for approved schools in England and Wales was then brought forward, and Mr. SHORT moved to reduce it. He said that up to 1928 reports were issued which gave a clear idea of the progress of administration in these schools, but these reports were no longer issued. He hoped the Home Secretary would take immediate steps to ensure that some report was issued on this problem. On September 30, 1936, there were 7,927 children in these schools against an average daily prison population of 11,306. A very large number of young offenders were drafted into these schools. In 1935 69,849 persons were found guilty of indictable offences. Of these 25,543 were under the age of 17. Of offenders under 17, 9 per cent. were sent to Home Office schools, 51 per cent. were placed under probation officers, 8 per cent. were bound over without an order for supervision, and in 24 per cent. of the cases the prosecution was dismissed. The figures for 1936 were not available, but he surmised that that there had been an increase in the number of juvenile offenders and that a larger percentage had been sent to approved schools. There were some eighty-seven approved schools, and from 1930 to 1936 there had been a consistent increase in the number of children ordered by the courts to go to these schools.

Sir SAMUEL HOARE gave an assurance that in future there would be a regular report upon these schools. It was difficult to define the reasons for the increase in the number of children sent to them. The existence of juvenile courts and the greater interest taken in the condition of children might have led to that increase, or there might be greater temptations for children to commit some offences. In his latest report the Commissioner of the Metropolitan Police drew attention to the fact that a large number of offences were committed by children of 13. The Home Office was not satisfied with the present position. It had not sufficient accommodation for the increasing number, and from time to time children had to be sent to remand homes and kept there much longer than could be desired. The schools as a whole turned out a good type of boy and girl, and the boys and girls made good in after life.

Mr. GOLDIE remarked that boys in approved schools, although 99 per cent. of them came from industrial areas, received an agricultural training, and he believed that a good deal of recidivist juvenile crime was because the boys found they could not compete in the labour market against those who had received an industrial training.

Mr. GEOFFREY LLOYD said that in 1928 the percentage of children found guilty in the juvenile courts was 9.75 and in 1935 it was 9.21. Broadly speaking there was no evidence that the courts made increased use of this method of dealing with juveniles. The talk about a wave of juvenile crime was loose and unjustified. They were experiencing at the moment a considerable rise in the juvenile population, and owing to the Children and Young Persons Act, 1933, there was less reluctance to bring cases of juvenile delinquency before the courts.

The motion to reduce the vote was withdrawn and progress was reported, leaving the vote open.

Health and Medical Care of Spanish Refugee Children

On June 7 Miss CAZALET asked the Minister of Health what was the present position regarding the health of the Basque children who had been brought into this country. Mr. BERNAYS replied that the general health of these children was satisfactory, but it was desirable on grounds of public health that the number of children in the camp at North Stoneham should be reduced as speedily as possible. The National Joint Committee for Spanish Relief was in accord with this view. Evacuation was in progress, and about 900 of the 4,000 children had already been transferred elsewhere. Five cases of typhoid fever, two cases of diphtheria, and three cases of measles had occurred among the children. The patients had been isolated and appropriate precautionary measures had been taken against the spread of infection.

Captain BALFOUR asked whether, if he gave the Minister any information from local residents that there were no adequate medical arrangements and that many of the helpers had no knowledge of the language at all, he would take notice of that information. Mr. BERNAYS said he would be glad to have any information which Captain Balfour could give him.

Mr. D. ROBERTS asked if it was not the fact that there were five full-time, fully qualified doctors, matrons, a large staff of nurses, and a staff of local V.A.D.s in the camp.

Sir FRANCIS FREMANTLE: Would not the care of these children naturally come under the local sanitary authority and the local medical officer of health; and if the latter was not able to act for reasons of other functions and duties, would they not come naturally under the care of a direct officer of the Ministry of Health?

Mr. BERNAYS: An officer of the Ministry of Health is constantly visiting the camp and sending reports to the Ministry on the subject.

On June 8 it was announced that the Minister of Health was not aware that any instructions were given or any request made that the children from Bilbao should be vaccinated or inoculated before reaching this country.

Animal Diseases: Government Policy

On June 7 the House of Commons, in Committee of Supply, considered the Vote for the Ministry of Agriculture and Fisheries. Mr. W. S. MORRISON, in reviewing the work of the department, said that the milk scheme had so far rendered possible a start on the great question of improving the quality and increasing the consumption of this vital food. In the last financial year the amount of milk sold in the liquid market increased by 12,500,000 gallons, and the quantity for manufacture had increased by 8,000,000 gallons. There had been an immense increase in the number of persons producing milk of an accredited standard. Before the scheme was introduced there were only 800 Grade A licences, but now there were nearly 20,000 producers of milk of accredited standard.

With regard to poultry disease, the Technical Committee which had been set up was considering the present methods of distribution of hatching eggs, day-old chicks, and feeding stuffs. Strenuous efforts were being made to lessen the toll of mortality among the chickens. Research into the pathology of diseases which had caused the losses among poultry was being continued by the scientific bodies concerned. Any further measures which might be taken would be of an administrative character when the new central veterinary service came into being.

Referring to the immense burden of animal diseases, which cost the industry something like £14,000,000 a year, he said that a great deal of work had been done in the past by local authorities and by the Ministry's veterinary service, and practical results had been obtained. During the last financial year there were thirteen centres of infection from foot-and-mouth disease, and these comprised sixty-six separate premises. The policy which had been carried out had had the result that the disease had not become endemic in this country as it had in some other countries. There was a slight increase in the incidence of anthrax, but a satisfactory decrease in swine fever and sheep scab. There were still diseases like tuberculosis, contagious abortion, mastitis, etc., which took an immense toll of our cattle. The proposals which he had recently announced would involve legislation, and represented a very much bigger step forward and a much more resolute attack on this problem than had yet been made. He hoped, with the co-operation of those concerned, that it would yield substantial results in freeing the industry from a wasteful burden.

Scientific Personnel of Ministry of Health

On JUNE 8 Sir KINGSLEY WOOD informed Mr. Markham that on April 1, 1937, the scientific staff of the Ministry of Health, other than the medical and dental staffs, totalled thirteen. This figure included a chemist, chemical inspector, alkali inspectors, and pharmacists. The corresponding figure at April 1, 1930, was thirteen. The medical and dental staffs at the same dates were respectively: medical staff, 1930, 104, and 1937, 115; dental staff, 1930, 12, and 1937, 16. In addition the Department's establishment in both years included a post of serologist, which was temporarily vacant on April 1 last, and would shortly be filled.

Capitation Fee

Mr. WILL THORNE asked on June 10 whether the Court of Inquiry had come to any settlement in connexion with the fees to be charged by the doctors when boys and girls became employed after leaving school; and whether the Government intended bringing in a Bill to deal with the matter?

Sir KINGSLEY WOOD answered that the Court of Inquiry which was asked to consider the doctors' capitation fee to be paid as from January next for all insured persons entitled to medical benefit, on the assumption that employed juveniles would then be included, had reported in favour of the present rate of nine shillings per annum. He would introduce the necessary Bill as soon as Parliamentary business permitted.

Mr. THORNE: Is it in consequence of their powerful organization that the doctors have got all that they wanted?

Sir K. WOOD: I would advise the hon. gentleman to consult the doctors.

Tuberculin-tested Herds.—On March 31 last there were 1,795 herds in England and Wales licensed for the production of tuberculin-tested milk. There are at present in England and Wales 293 attested herds (which are tuberculin-tested) on the register kept by the Ministry of Agriculture. This number includes eighty-four herds which are also licensed for the production of tuberculin-tested milk.

Minimum Income and Nutrition.—On June 7 Mr. SANDYS asked the Minister of Health whether the Government accepted Mr. Seebohm Rowntree's recently published estimate of the minimum income required to provide the essentials of life, to which his attention had been drawn; and if not, whether his Department had made any such estimate of its own. Mr. BERNAYS replied in the negative. He said that the Minister was advised that this estimate involved certain features that were very conjectural, and no sufficient official material for the preparation of an estimate of this kind was at present available.

Administration of Midwives Act in Glamorgan.—Mr. EDWARD WILLIAMS asked, on June 9, whether a number of district councils in Glamorgan opposed the administration of the Midwives Act, 1936, by the county council, and had asked the Welsh Board of Health to receive a joint deputation in order that the position might be discussed, and that the Department refused to receive the deputation and gave no adequate reason for its refusal. Mr. Williams asked Sir Kingsley Wood to direct the Department to receive the deputation. Mr. BERNAYS replied that as the question of a local inquiry was involved doubt was properly felt as to the propriety of receiving a deputation. Sir Kingsley was, however, asking the Welsh Board of Health to treat the matter specially.

Universities and Colleges

UNIVERSITY OF OXFORD

E. S. Duthie, M.B., M.Sc., Ph.D.Dub., has been appointed University Demonstrator in Pathology for four years from October 1, 1937.

The name of S. Zuckerman, M.A., M.R.C.S., L.R.C.P., of Christ Church has been added to the list of members of the Faculty of Medicine.

Dr. A. G. Gibson, F.R.C.P., has been constituted Nuffield Reader in Morbid Anatomy, while holding the office of honorary pathologist at the Radcliffe Infirmary, from October 1, 1937.

UNIVERSITY OF CAMBRIDGE

At a congregation held on June 11 the following medical degrees were conferred:

M.D.—F. W. Shepherd, T. R. Thomson, E. W. Taylor.

M.B., B.CHIR.—*D. G. Levis, *N. B. Betts, *G. Rigby-Jones, S. C. Buck, G. E. Loxton, A. E. M. Hartley, A. J. Moon, R. G. Pulvertaft, J. H. Lankester, F. S. A. Doran.

M.B.—*K. G. F. Mackenzie, *T. V. Tattersall, J. S. Ellis, A. L. Jackson, H. S. Mellows, J. M. Scott, E. F. W. Grellier, K. W. B. Rostron.

* By proxy.

UNIVERSITY OF MANCHESTER

Dr. Frederick Hall has been appointed Lecturer in Public Health Administration.

UNIVERSITY OF SHEFFIELD

At a meeting of the University Council, held on June 11, Dr. Gilbert Forbes was appointed Lecturer in Forensic Medicine, and Dr. J. M. Kennedy Lecturer in Infectious Diseases in the place of Dr. J. Clark, resigned.

UNIVERSITY OF WALES

The following candidates have satisfied the examiners in the examination indicated:

TUBERCULOUS DISEASES DIPLOMA.—A. A. Azeez, M. P. Crowe, B. A. Dormer, M. C. Malkani, C. F. McConn, K. P. R. Pillai, N. N. Sen, H. K. Surveyor, G. R. Talwalker, Helen Turner.

WELSH NATIONAL SCHOOL OF MEDICINE

The following candidates for the degrees of M.B., B.Ch. have satisfied the examiners in the subjects indicated:

PATHOLOGY AND BACTERIOLOGY.—O. D. Beresford, R. T. Bevan, Marjorie E. Bright, D. C. Brown, G. R. Davies, D. B. E. Foster, W. H. Harris, J. C. Herapath, D. G. Jarman, Elizabeth G. Jenkins, M. Lewis, M. Llewelyn, C. J. Morgan, Josephine Parnell, Enid M. Powell, J. L. Rees, Ll. M. Williams, W. Williams.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

A meeting of the Council of the Royal College of Surgeons of England was held on June 10, when the President, Sir Cuthbert Wallace, Bt., was in the chair.

An offer of £500 for one year from the Rockefeller Foundation towards the research work at the College was accepted with grateful thanks.

Sir Holburt Waring, Bt., made a presentation to the College on his retirement from the Council. Sir Holburt Waring was President from 1932 to 1935, and a member of the Council from 1913 to 1937.

The Honorary Medal of the College was presented to Sir Frank Colyer.

Examiners

The following examiners were elected for the ensuing year:

Fellowship.—Anatomy: P. N. Blake Odgers, H. H. Woollard, R. B. Green, E. P. Stibbe. *Physiology:* Hamilton Hartridge, John Mellanby, D. T. Harris, A. St. G. J. McC. Huggett.

Under the Conjoint Examining Board.—Elementary Biology: W. A. Cunnington, A. E. Ellis S. R. B. Pask, W. Rushton. *Anatomy:* E. P. Stibbe, A. J. E. Cave, W. J. Hamilton. *Physiology:* A. St. G. J. McC. Huggett, Samson Wright. *Midwifery:* A. C. Palmer, V. F. Lack, T. B. Davies, W. Shaw. *Pathology:* J. McIntosh, W. G. Barnard, B. W. Williams, D. H. Patey. *Diploma in Public Health:* Part I, H. M. J. Perry; Part II, C. Porter. *Diploma in Tropical Medicine and Hygiene:* Pathology and Tropical Hygiene, W. P. MacArthur; Tropical Medicine and Surgery, N. Hamilton Fairley. *Diploma in Ophthalmic Medicine and Surgery:* Part I, D. L. Davies, R. A. Greeves; Part II, R. Foster Moore. *Diploma in Psychological Medicine:* F. L. Golla. *Diploma in Laryngology and Otology:* Part I, S. R. Scott, E. Carew Shaw; Part II, T. B. Layton. *Diploma in Medical Radiology:* Part I, H. T. Flint; Part II, H. W. Davies. *Diploma in Anaesthetics:* H. E. G. Boyle. *Diploma in Child Health:* A. G. Maitland-Jones.

Dental Surgery (Surgical Section).—C. P. G. Wakeley, C. E. Shattock, P. H. Mitchiner, E. G. Slesinger, R. M. Vick, J. B. Hume. *In Medicine for the Licence in Dental Surgery.*—R. A. Rowlands, A. H. Douthwaite, R. A. Hickling, C. E. Newman.

Diplomas

A diploma of Membership was granted to Alan William Woolley.

Diplomas of Fellowship were granted to the following candidates:

G. L. Talwar, J. H. Mulvany, B. E. Fernando, V. H. Barnett, H. G. Ungley, H. W. Burge, A. H. Charles, A. B. Evans, A. Miller, W. H. D. Trubshaw, C. F. Critchley, S. G. Mayer, G. Blackburn, W. A. Law, B. N. Sinha, A. J. Helfet, J. R. Rose, W. R. Merrington, B. L. Williams, K. G. F. Mackenzie, A. Mukerji, R. T. K. Nayar, A. K. Talwalkar, R. A. Hughes, B. N. B. Rao, T. H. Ackland, W. S. Campbell, H. G. N. Cooper, K. R. Cussen, I. G. L. Ford, A. N. McCrea, S. K. Menon, J. S. M. Pringle, H. J. Ross, J. C. Scott, R. A. MacR. Yeates, F. R. Yousry.

Diplomas in Anaesthetics were granted, jointly with the Royal College of Physicians of London, to the following candidates:

C. D. Banes, R. P. Booth, Elva M. Chivers, R. T. V. Clarke, R. W. Cope, H. Curtis, G. Dru Drury, A. C. Fraser, A. H. Galley, J. L. Hopkins, E. Landau, I. N. Lewis, H. J. V. Morton, A. H. Musgrove, J. A. V. Nicoll, W. Niven, Angela M. S. A. Ofenheim, G. S. W. Organe, F. H. Pratt, A. C. R. Rankin, O. N. Ransford, J. R. Ritchie, Major J. M. Savege, R.A.M.C., Major H. R. Sheppard, R.A.M.C., J. T. Turner, R. C. Walch, Doris E. C. Walker.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

At a meeting of the Royal Faculty of Physicians and Surgeons of Glasgow, held on June 7, with the President, Professor Archibald Young, in the chair, the following were admitted Fellows: Mohamed Salleh Bin Abdul Hamid, James Holmes Hutchison, Herbert Derek Brown Kelly, Bal Krishna, Kedar Nath Sinha, Helen Frances Wingate.

Medical News

Sir Farquhar Buzzard, Bt., will distribute the prizes to students of St. Thomas's Hospital Medical School on Tuesday, June 29, at 3 p.m., in the Governors' Hall. Tea and music on the terrace.

The Dowager Marchioness of Reading will present prizes and certificates at the London (Royal Free Hospital) School of Medicine for Women, 8, Hunter Street, Brunswick Square, W.C., on Wednesday, June 30, at 3.30 p.m.

The Society of Surgery of Belgium is holding a special meeting on June 19 and 20 in Brussels, at which the two subjects for discussion are "The Surgery of Pain" and "Respiratory and Circulatory Complications of Surgical Intervention."

Sir Kaye Le Fleming, M.D., will take the chair at the sixty-eighth Old Tonbridgians' dinner at the Hotel Victoria, Northumberland Avenue, on Wednesday, June 30, at 7.30 p.m. The honorary secretary is Mr. Thomas Nottidge, 7, Cowley Street, S.W.1.

The annual banquet of the West London Medico-Chirurgical Society will be held at the Trocadero Restaurant, Piccadilly, W., on Wednesday, July 7th, at 7.30 for 8 p.m. The honorary secretaries are Dr. W. K. McKinstry and Mr. A. Simpson-Smith.

The annual general meeting of the Medico-Legal Society will be held at 26, Portland Place, W., on Thursday, June 24, at 8.15 p.m., and will be followed by an ordinary meeting, at which Miss Alice Raven will read a paper on "Prejudicial Assumptions in Poison Cases."

A meeting of the Medical Section of the British Psychological Society will be held at 11, Chandos Street, Cavendish Square, W., on Wednesday, June 23, at 8.30 p.m., when a paper will be read by Dr. J. L. Halliday on "The Approach to Asthma."

The Medical Art Society will hold its third annual exhibition at the Royal Society of Medicine, 1, Wimpole Street, from Thursday next, July 1, to Wednesday, July 14 inclusive, except Saturdays. Admission is free without ticket. All members of the medical profession and their friends will be welcome as visitors. The exhibition opens at noon each day.

On June 10 Sir Arthur MacNalty, Chief Medical Officer of the Ministry of Health, opened a tuberculosis pavilion at the Isolation Hospital, Millbrook, Southampton. The new pavilion accommodates forty-four beds, and brings the number of tuberculosis hospital cases which the health department can deal with at one time up to 140.

The sixth joint conference of the National Association of Cemetery and Crematorium Superintendents and the Federation of Cremation Authorities in Great Britain will be held at Torquay from June 28 to July 1.

The offices of the National Smoke Abatement Society are being transferred from Manchester to London, and from June 24 the address to which all communications should be sent will be Chandos House, 64, Buckingham Gate, Westminster, S.W.1.

The Board of Education has reissued in pamphlet form a revised list (No. 42) of certified special schools for blind, deaf, defective, and epileptic children in England and Wales, and also institutions recognized by the Board as providing higher education for such children, together with a list of nursery schools. The institutions are grouped according to type and arranged in counties, details being given of the available accommodation in each. Copies of the list may be obtained from H.M. Stationery Office or through any bookseller (price 1s.).

The annual meeting of the International Committee of the Campaign against Charlatanism will be held in Paris under the presidency of Dr. Boëlle at the end of June, at the time of the Paris Medical Congress.

The report of the Select Committee on Medicine Stamp Duties, which was summarized in the *Supplement* of March 13 (p. 128), together with the proceedings of the committee, minutes of evidence, and index, has now been published in volume form. Copies may be obtained from H.M. Stationery Office, price 7s. 6d. net.

Sir Robert Mond, LL.D., has accepted the chairmanship of the National Baby Week Council. Dr. Eric Pritchard, chairman of the executive committee, in welcoming Sir Robert to the chair of the Council, referred to him as the founder of the voluntary infant welfare movement, and recalled how, so long ago as 1903, Sir Robert's interest in the welfare of babies and little children led him to the formation of a ladies' committee and temporary infants hospital at Hampstead, which was subsequently replaced by the now well-known Infants Hospital, Westminster, which he built in 1907.

The National Baby Week Council has chosen for its form of publicity this year housing and the home in relation to maternity and child welfare. Information about pamphlets and leaflets bearing upon this campaign may be obtained from Miss Norah March, B.Sc., secretary, National Baby Week Council, 117, Piccadilly, W.1. The week will be held this year from July 1 to 7.

A party of medical men from Australia, New Zealand, Canada, India, and Ceylon, made a brief trip to Yorkshire last week-end as the guests of the Harrogate Medical Society. Accompanied by local spa doctors they visited the Royal Bath Hospital, Harrogate and District General Hospital, and the Yorkshire Clinical Laboratories of Dr. Sinclair Miller (president of the Harrogate Medical Society) on Saturday morning. Later they were received by the Mayor and visited Ripley Castle in the afternoon, and the Royal Baths and Royal Hall during the evening. Sunday's programme included a visit to York Minster for the morning service, luncheon with the Mayor of Harrogate, and a trip to Fountains Abbey.

Work has been started on the extensions to the Brockhall Institution, near Clitheroe; they are expected to cost more than £750,000, and will take four and a half years to complete. These extensions, which will give the Institution room for 1,067 male and 1,031 female patients, are to include twenty-eight new wards with accommodation for 1,326 persons, a school for 350 to 500 children, a hall seating 750 for instruction and for recreation, 644 workrooms for patients, new medical units, and increased office accommodation.

The *Newcastle Journal* of June 9 states that nearly 1,000 cases of measles have been notified during the last six weeks in Sunderland.

Dr. J. A. Hislop (Inner Temple) was called to the Bar on June 9.

On July 1, 1937, a new and more stringent system of notification of the causes of death will be put into practice in France. This reform is the outcome of a certain laxity, diagnostic and terminological, in the matter of notifications of death, 17 per cent. of which in 1933 did not state precisely what were the causes of death.

A French society of cardiology has recently been founded under the auspices of Professor Laubry and the Editorial Committee of the *Archives des Maladies du Cœur*.

The Rumanian Parliament has recently passed a law whereby the eminent neurologist, Professor Marinesco of Bucarest, is to retain his chair for life.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone, unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The TELEPHONE NUMBER of the British Medical Association and the *British Medical Journal* is EUSTON 2111.

The TELEGRAPHIC ADDRESSES are
EDITOR OF THE *BRITISH MEDICAL JOURNAL*, *Aitiology Westcent, London.*
FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*
MEDICAL SECRETARY, *Medisecra Westcent, London.*

The address of the B.M.A. Scottish Office is 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 24361 Edinburgh), and of the Office of the Irish Free State Medical Union (I.M.A. and B.M.A.), 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin*; telephone 62550 Dublin).

QUERIES AND ANSWERS

The Aftermath of Sympathectomy

"PERTURBED" writes: I have the misfortune to be personally interested in a very severe case of Raynaud's disease affecting both hands and feet, and I naturally follow as far as I can the current literature on the subject. In the *Journal* of May 22, there appears an annotation on the technique of sympathectomy, from which it appears that the operation devised by Telford is preferable to Smithwick's operation, and that pre-ganglionic section is preferable to post-ganglionic section. But nowhere have I seen in print any allusion to a matter which perturbs my mind. I have been warned against the operation for Raynaud's disease affecting the feet, on the alleged ground that it results in derangement of the bowels and loss of control over the bladder. It is on this point that I seek definite and trustworthy information. Considering that in any case the operation is only palliative, not curative, one would think that Raynaud's disease plus loss of control over the bladder would make life utterly miserable. Can any surgeon who has been able to follow up his cases tell me in what percentage of his operations this loss of control occurs?

Filing Cabinet Wanted

H. N. G. (2, Mount Road, Hayes, Middlesex) writes: I am looking for a metal cabinet with drawers to house transfer files, each record being a linen-lined paper bag 5.3 inches wide and 8.3 inches high. While the records cannot be stored on their sides there would be no objection to two or even three rows, side by side, in each drawer. There should be enough all-round clearance for rapid reference.

Gas Dispersion in Pyelography

In response to the inquiry by "Borborygmus" for a satisfactory method of obtaining a clear field unobstructed by intestinal gas for intravenous pyelography, we have received the following reply from Messrs. Allen and Hanburys, Ltd.: May we draw attention to our preparation, charkaolin? This combination of highly activated vegetable charcoal and colloidal kaolin has been adopted in hospital as a routine means of deflating the intestines before intravenous urography and before cholecystography. The dosage for that purpose is two teaspoonfuls of charkaolin granules each night for three days before the examination. The efficacy of this practice has been most gratifying, and in an emergency a single large dose given the night before the examination has been followed by complete success. This information is given in our leaflet about charkaolin granules and charkaolin tablets.

Income Tax

Income From Foreign Estate

"Q. Z.'s" wife has been left an estate abroad consisting of certain mortgages and house property; in addition, she was left a large private house which under the terms of the will she is unable to sell and has to maintain. The cost of management and upkeep exceeds the income from the estate. Is "Q. Z." liable for income tax?

*** Income in the form of foreign mortgage interest falls within a different "case" of Schedule D than income from foreign rents, and there is no right of set-off between the two cases. Consequently "Q. Z." is liable to account for tax on the income arising abroad as mortgage interest whether it is remitted here or not, but in so far as the foreign *rents* are applied to meeting the cost of maintaining the property they are not taxable here. Seeing that both forms of income arise from the same testamentary disposition there is a clear hardship, and we suggest that "Q. Z." might put the facts before the Board of Inland Revenue (Somerset House, W.C.2), asking that the income should not be divided but be treated as arising out of a beneficial interest in an estate and only the net surplus income (if any) be regarded as liable to assessment.

Private Use of House and Car

"M.D." asks what proportion of the running expenses of a car is usually regarded as for private use where the annual mileage is, say, 11,000 miles, and also whether the local inspector of taxes is right in excluding from the house repairs claim any expenditure which would be carried out normally by a landlord.

*** It is impossible to suggest a ratio for private use of car, as so much would depend on circumstances—for example, use during holidays—but 10 to 15 per cent. is not uncommon. With regard to the house we disagree with the inspector. As "M.D." owns his residence he is presumably allowed in respect of rent a proportion of the *net* income tax assessment. Either he should have been allowed a proportion of the *gross* assessment—that is, before the statutory deduction for repairs—or a proportion of the net assessment plus actual expenditure on the professional portion. The inspector's argument can be carried to a logical *reductio ad absurdum* by applying it to a factory or shop.

Replacement of Car

"A. B. D." bought a 14.9 "M." car in 1929 for £299 and sold it in October, 1936, for £27, buying a 13.9 h.p. "M." car. What can he claim?

*** As "cost of replacement"—the cost of the new car less £27—or as "obsolescence" allowance £299 − £27 = £272, or the cost of the new car, whichever is greater. In either case the amount allowable is treated as an expense of the year 1936.

LETTERS, NOTES, ETC.

A Maternity Convalescent Home

Readers may like to know that there is accommodation at Black Lake Home, Farnham, Surrey, for mothers who wish to take an inexpensive convalescent holiday after confinement. This convalescent maternity home, which is situated in pleasant surroundings, is for the wives of professional and business men. There is accommodation for five mothers and babies, who receive expert nursing attention. Babies under a fortnight and over 3 months of age are not admitted. The home is not run for profit, and the fees are from two and a half to three and a half guineas a week. In cases of special need even lower terms can be arranged.

Nutrition and Health

With a view to bringing that section of the rising generation which is passing through the secondary schools of London into contact with some of the more important aspects of science and its applications, the British Science Guild in 1935 organized a new annual series of lectures. The first proved so successful that it was decided to invite the Science Masters' Association and the Association of Women Science Teachers to assist in the general working of the scheme as a memorial to the late Mrs. Gabrielle Howard, who was deeply interested both in science and in education. The managers of the Royal Institution lent their theatre for the two lectures for 1937 by Sir Robert McCarrison on "Nutrition and Health." Sir Robert McCarrison's lectures were given last month to over a thousand London boys and girls aged 14 and over from secondary schools, and have now been printed as a pamphlet, in which form they may be commended to the notice of medical students as well as to the general public. Copies can be obtained direct from the printers, Messrs. Headley Brothers, Ashfield, Kent, at the following rates, which include postage:—1,000, £6 9s. 6d.; 50, 7s.; 25, 3s. 9d.; 6, 1s.

Continuity

Dr. EDWARD G. WALES of Downham Market, Norfolk, sends this interesting note: I am retiring from practice at the end of June: 150 years from father to son, four generations in the same house without a break. Perhaps this is not a record for country practice, but may be nearly so. The practice will now merge with others and I remain in the same house. We have been members of the B.M.A., I believe, since its foundation.

Perspective in Medicine and Art

Dr. A. D. WILLIS writes: The practice of the medical art need not be fatal to or remote from the appreciation of pictorial art. One might almost say that the two are related now that the psychologists are trying to bridge the gap between the mind of the artist and the created work. In the opening words of his admirable address to the Medical Society of London (*Journal*, May 22, p. 1057) Dr. R. A. Young deals with the question of perspective in painting and draws an analogy between its pictorial and its medical usage. But I doubt if the analogy is tenable. Vital though perspective is in any sane approach to medicine, to regard its discovery as an unmixed blessing to painting is, I think, to deprive oneself of a true and eclectic appreciation of art. Theoretically there is no reason why it should not have increased the power of artistic expression rather than change its fashion. Its abuse lay in its being regarded as an end and not as a means in artistic expression. Probably this was a factor in the decline of much good art between the thirteenth and nineteenth centuries. Be that as it may, it enabled the majority of painters during that period—in the words of Dr. Johnson—to "arrange things in a picture according to their appearance and real situation." I mean it encouraged them to create illusions and to cover their canvases with literary irrelevances and sentimental allusions. Speaking generally one may say that realism became a substitute for the imagined truths and formal integration which the primitives in their innocence could alone conceive and translate. The work of El Greco is like a voice crying in the wilderness against the tyranny of perspective. The impressionists began to see the light, but it was left to the post-impressionists to realize that to simplify and distort are two great artistic virtues. Whoever doubts all this let him go to the Royal Acadamy, where the illusionists predominate; they are out of touch with the vital streams of art which are now gaining force after prolonged desiccation. It is significant that in the modern movements perspective is being eliminated although design is not a flat pattern. No doubt the perfection of chromophotography, although without a free selection of subject, will enable us to view the art since the thirteenth century "in its true relations or relative proportions," as we strive to view all our medical problems.

Medical Golf

The Manchester and District Medical Golfers' Association held its annual competition for the challenge cup at Wilmslow on June 9. Dr. N. R. Jeffery (Whitefield) was the winner of the cup, with a net return of 71 playing from sixteen strokes' allowance. Dr. W. L. Hunter (Hale) was the winner of the Walter gold medal for the best gross score of the day and also the runner-up's prize presented by the captain, Dr. T. M. Bride. The Walter silver medal, awarded for the best gross score among players with handicaps of ten or more, was won by Dr. G. Ferguson (Oldham) with a score of 84. Dr. R. W. Fairbrother of the home club went out in 35 strokes and won the prize for the best outward half, and Dr. W. S. Nunan (Selford) won the prize for the best homeward score, also with 35.

Savory and Moore Ltd., 61, Welbeck Street, London, W.1, have been appointed sole distributors in the United Kingdom of the products of E. R. Squibb and Sons, manufacturing chemists, of New York.